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Issue 124 • 23rd March 1991 • 88p

NEW COMPUTER EXPRESS

FIRST NEWS • FIRST REVIEWS • BEST BUYS • YOUR WEEKLY GUIDE

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STE price confusion clarified

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Two new ST portables are on the way

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First glimpses of Apple's stunning new products

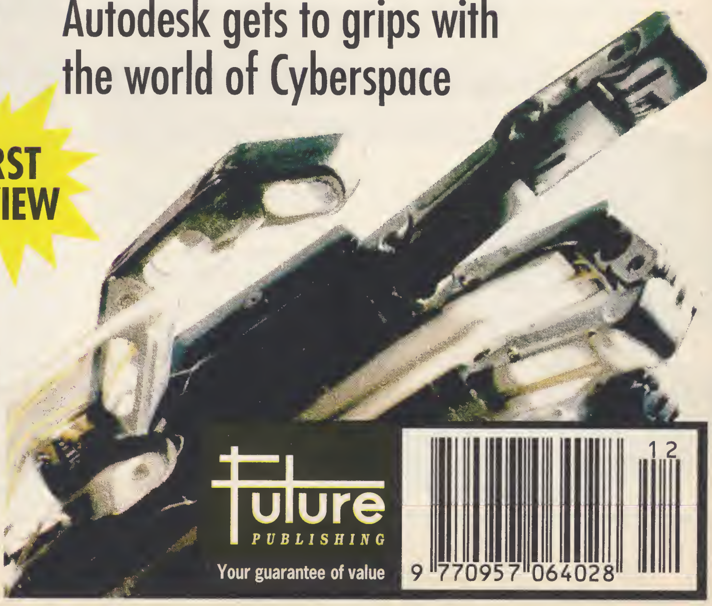
MOBILE COLOUR

FIRST REVIEW

Has Sharp made the best portable ever?

CAD GETS REAL

Virtual reality arcades are coming - Autodesk gets to grips with the world of Cyberspace



PLUS
REGULAR COLUMNS FOR
ARCHIMEDES
SPECTRUM
AMSTRAD CPC
C64
& 44 PAGES OF
SHOPPING EXPRESS
BARGAINS !!!

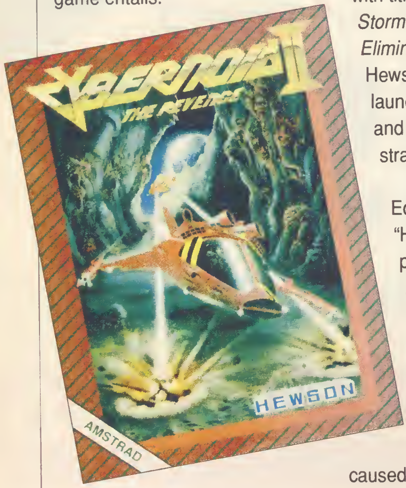
Future PUBLISHING
Your guarantee of value

frontend

edited by Colin Campbell

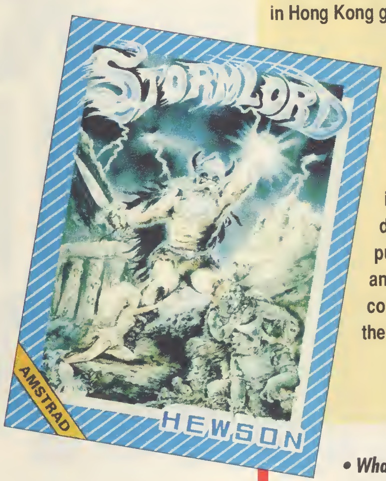
ARCADE FIRM FEELS BLAST OF RECESSION

Above all others, the simple shoot-'em-up has always been computer gaming's most abiding fad. The genre's simplicity and its ability to draw adrenalin has launched it to the forefront of the public's perception of what a computer game entails.



Last week Hewson, famous for the most stimulating of blast-'em-ups slipped into administrative receivership. The company is up for sale, because sales of its games have slumped around the world. Gamers will be familiar with titles such as *Paradroid, Stormlord, Nebulus, Eliminator* and *Deliverance.* Hewson also managed to launch *Future Basketball* and *Onslaught*, a Medieval strategy affair.

Official receiver Edwin Antill told *Express*: "Hewson had been profitable because of high sales. But now we have a recession, and sales have dropped in the UK and around the world. Hewson was always popular abroad, and this caused a cash-flow problem."



He pointed out that sales for most games publishers is down, adding that Oxford based Hewson's relatively small presence made it more vulnerable.

It is hoped that someone will step in and buy the whole company as a going concern.

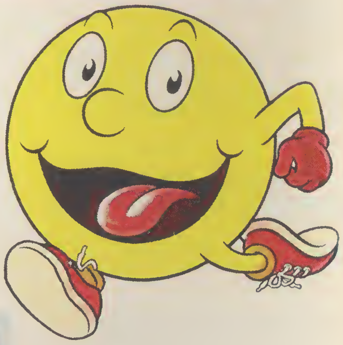
Fighting talk

This man could rip your solar plexus out and use it as an ashtray. He's so mean that the most dastardly warlords and Kung Fu fiends in Hong Kong go all shaky as soon as they hear him make those funny 'Yang Chooh Neih' noises.

When Jackie Chan starts making those sounds you can be sure that lots of nasty drug dealers or kidnappers are just about to be taking involuntary somersault lessons.

Soon, computer gamers will be able to indulge in Jackie's fine arts, thanks to a licensing deal between the delightful movie mauler and games publisher Hudson Soft. First formats will be Nintendo and PC Engine, and it is hoped that traditional home computers will be getting the Chan treatment before the end of this year. ■

• What goes "wocka wocka wocka chomp" and sits in your pocket? It's Pacman on the Nintendo Gameboy. Our hungry little chum will be making his handheld appearance in the autumn. Burp



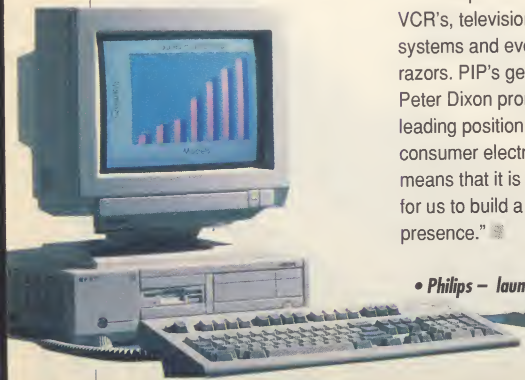
Philips PC push

A complete line-up of professional PCs has been launched by Philips, including a top of the range 486.

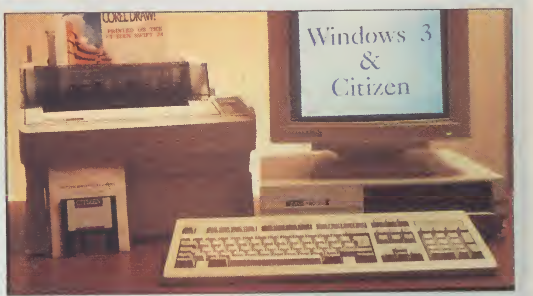
The machines are the first to be released under Philips' new Personal Information Products (PIP) division, which the Dutch company claims will soon become a major brand in professional computing. To that end, the company has invested a tasty $15 million on a new manufacturing plant in Montreal.

Pricing is not especially impressive. The entry level 286 AT costs £1,2000, while the 486 (running at 25MHz) would set you back £9,600.

Philips manufactures VCR's, television sets, satellite systems and even electronic razors. PIP's general manager Peter Dixon promised: "Our leading position in the consumer electronics market means that it is entirely logical for us to build a major PC presence."



• Philips – launching a PC line-up.



Is Windows 3 driving you mad?

Millions of PC owners have already converted their machines into easy to handle Windows 3 engines. But in the rush to turn MS/DOS beasts into easy-to-use beauties, users have come across snags.

For example, finding the right printer driver in each program can cause all manner of grief and file searching. Enter top printer manufacturer Citizen.The firm is offering free Windows 3 drivers for its entire range of dot matrix printers, making them compatible with all Windows 3 applications.

Citizen claims that the driver will speed up processing time and enhance print output to a cool colour palette of 256 in 360 x 360 dpi."Windows 3 is clearly having a profound effect on the information technology market," explained the firm's Judith Churley. "We're keen to take a leading role."

For further information contact Citizen on 0895 72621. ■

Chip and run

A lone gunman held up a truck carrying hundreds of computer chips, and stole only the best chips in the consignment.

The truck had left Advanced Micro Device's assembly plant in Sunnyvale, California late last week and was heading for the local airport. The gunman threatened the driver with his gun, and sifted through the boxes of chips.

He stole nearly a thousand of the firm's recently developed 386 chips – all were "top secret" chips which had yet to be put on the market.

AMD spokesman John Greenagle said: "He obviously knew what he was after." The value of the chips is put at about £90,000. American Police are investigating the robbery.

C64: WHERE TO NEXT?

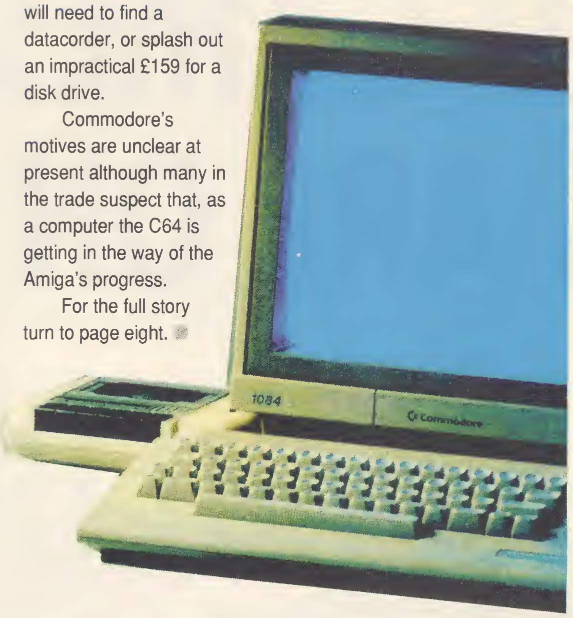
Commodore has announced that it is to cease bundling the C64 with the ubiquitous data cassette recorder, thus turning the machine into a cartridge only unit.

Buyers will be offered the nine-year-old C64 without the traditional datacorder, at a lower price of £119. The pack will come with four cartridge games and a couple of joysticks. The keyboard-less C64 console will still retail at £99. Commodore is keen to point out that the full computer is "only £20" more expensive than the dedicated console, which has failed to make much of an impression since its September launch.

However, buyers hoping to indulge in serious computing will need to find a datacorder, or splash out an impractical £159 for a disk drive.

Commodore's motives are unclear at present although many in the trade suspect that, as a computer the C64 is getting in the way of the Amiga's progress.

For the full story turn to page eight.



Cybernauts games show

A TV game show based on a three dimensional computer world is to be launched in the autumn.

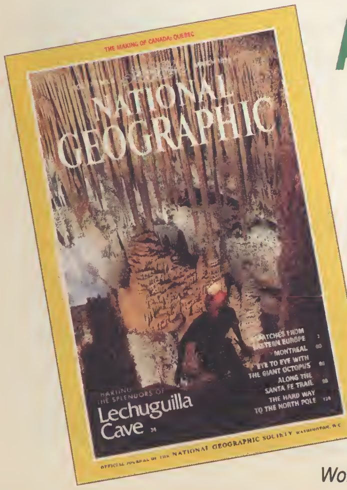
Cyberzone is already being hyped as the "world's first virtual reality game show'. It is being produced by Anglia Television with the help of _Red Dwarf_ TV star Craig Charles.

Contestants are kitted out with weapons and must avoid baddies using strategy and cunning. It won't be their actions which viewers will watch, but those of their computer generated images (shown as cyborgs).

Players must find their way through a town, shooting baddies all the way. The computer images have to react instantly to players' movements, and the system at the centre of the game consists of six networked ICL 486 PCs. All have been fitted with graphics boards.

The game itself has been borrowed from the world of home computers. Ian Andrew, boss of games publisher Incentive, wrote the games system which is based on the three dimensional Freescape environment. ■

Animals on CD-ROM



A CD-ROM packed with data on the animal world is to be launched by Mindscape.

The information has been licensed from *National Geographic* magazine and Mindscape reckons its CD-ROM will be the most complete reference library on the mammal world yet published.

Mammals of the World on CD is being pitched a a "living encyclopaedia". You can choose any mammal by name, habitat or species and displayed text will detail everything you need to know, such as preferred food, living conditions and mating habits.

There's also 256-colour VGA motion video of the mammal in its natural conditions. The retail price is likely to be in the region of £100 when it is launched in the summer.

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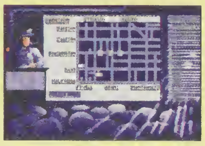

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Win two Brother printers worth £500 – page 66

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Amiga and ST basher will be out this autumn – but at a price

AMSTRAD GAMES PC: THE BETS ARE ON

It is now almost certain that Amstrad will launch an IBM compatible PC in the autumn, aimed squarely at games players.

Trade sources were last week insisting that the project had been given the go-ahead at the highest possible level within the company. The so-called PC4000 – first detailed in Express 105 – is Amstrad's answer to the phenomenal success of the Amiga and ST.

The single unit 286 will feature high quality VGA graphics capabilities, which bring the PC up to the Amiga's standards in games presentation. The price is likely to be in the region of £700, and that will include a monitor.

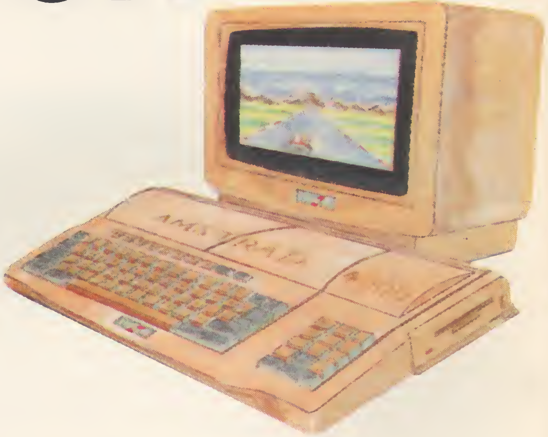
PC compatibility will also give buyers access to the most comprehensive collection of programs in the world.

Some have expressed surprise at this move, arguing that the lamentable PC200, which was launched in 1988 to almost universal derision, should have taught Amstrad not to meddle with the 16-bit games market.

However, the ever-tenacious Amstrad has decided not to give Atari and Commodore an easy run, and will launch the PC this autumn along with a fanfare of high profile publicity and advertising.

Comparisons with the wretched PC200 are being made within Amstrad's Brentwood headquarters, but the company's bigwigs argue that the new machine will be the PC200 without the mistakes.

Amstrad will not discuss any of its projects until they are ready, but even the most conservative industry watchers are now backing a PC games machine. ■



• *Artists impression: Amstrad's major launch for the autumn*

Hologram to beat Eastern pirates

Microsoft, the biggest software house in the world, has pledged that it will crush the massive piracy racket which grips the Far East.

The company says it is losing millions of dollars, because villains are not only copying its software, but also duplicating manuals and packaging.

Now Microsoft is to fit a range of distinctive holograms on all its products.

This way honest software buyers will know that they are getting the real thing.

"The labels cannot be taken off, scratched or steamed off without the hologram self-destructing," said Richard Gill, marketing manager of developer Applied Holographies. "This makes it virtually impossible for counterfeiters to operate. From now on, end-users around the world will know that all Microsoft's MS-DOS products must have a hologram for them to be authentic."

The hologram shows a three-dimensional Microsoft logo superimposed on a background of flashing logos. ■

• *Amiga: budget version next year?*

Budget Amiga?

Rumours are rife in the States that Commodore is planning to produce an even cheaper Amiga than the current A500.

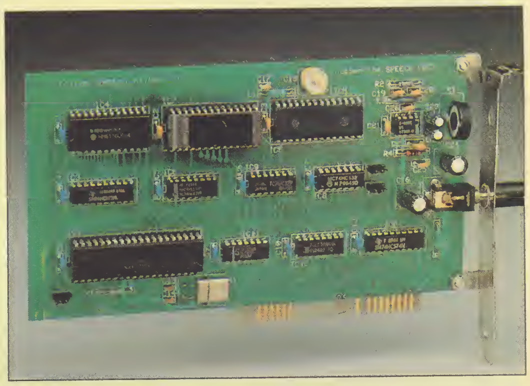
According to the influential *AmigaWorld* magazine, Commodore is planning to "blanket the mass-maket with an even lower-cost Amiga during the coming year".

It seems Commodore is hoping to repeat the success of the C64 by offering a machine which is affordable to the average American. However, the continuing success of the £399 Amiga over here, makes it unlikely that we will see a cheap Amiga in the near future. ■

Tasword returns

Tasman has launched an enhanced version of its PC word processor Tasword.

Tasword PC2 incorporates a new editor menu system, built in database, password protection with file encryption and automatic backup. It costs £149, while the original Tasword will continue to retail at £43. Call 0532 438301. ■



• *Lipservice: gift of the gab.*

Sounds good to you

A new text-to-speech system for the PC has been launched by Logicom, enabling you to hear the sound of your own writing.

The expansion card will allow users to hear each word or command as it is typed. It can be used in conjunction with most text based software packages including *Wordperfect* and *Wordstar*.

It has an unlimited vocabulary (since it simply repeats what it reads) and does not require large amounts of memory. Logicom's Lipservice Text to Speech system costs £89 and is out now. Call 081 756 1284. ■

CROFT CORPORATION

• *Floor 13: killing for a living.*

Bigtime megalomania

How would you like to murder, torture, corrupt and suppress, all in the name of democracy?

If power for its own sake is your kind of thing, then you'll like a new game being developed at Virgin. In *Floor 13* you are the head of an un-named secret police force which spends its whole time protecting the British Government from undesirable politicals, dangerous bigmouths, and sloppy officials.

If necessary you will kill anyone who gets in your way, or you can be more subtle and simply ruin their lives.

Floor 13 is a strategy simluation written by David Eastman, who was also responsible for the excellent Middle East political game *Conflict*. Out on the ST, PC and Amiga late this year. ■

Atari clears ST pricing confusion

Atari has finally cleared the confusion concerning the positioning and pricing structure of its ST range.

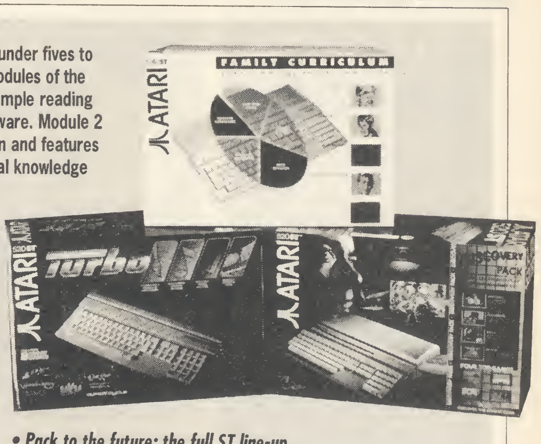
The firm was last week categorically denying that the entry level STFM had been phased out in favour of the superior STE. Instead, Atari has set up three clearly defined levels for ST buyers.

At the bottom end is the traditional STFM based Discovery Pack, which is aimed at first time buyers and features some helpful productivity software and a few games. That will continue to retail at £299 and stocks are understood to be healthy.

Or, for £349 buyers can indulge in the Turbo Pack which features an STE along with eight games and some serious software. Turbo was launched last year for £399 and proved hugely successful over the peak buying season.

Now Atari has introduced the new Family Pack which retails at £399. The 1Mb machine is aimed at everyone "from under fives to over 50s". There are five modules of the pack – Module 1 features simple reading and writing educational software. Module 2 targets junior school children and features maths, spelling and a general knowledge quiz. And Module 3 is designed to assist with GCSEs.

Module 4 will appeal to those with creative tendencies, it contains programs such as *Hyperpaint* and *MusicMaker II*, and *Module* 5 includes all you'll need for serious business computing. ■



• Pack to the future: the full ST line-up.

"Our R&D is back to hyperactivity" – Bob Gleadow

ATARI REVEALS TWO NEW STs

Atari is set to launch two portable computers based on STE technology.

The machines were shown off at last week's CeBIT computer fair in Hanover. And at a special press conference in London last week, Atari UK announced that both were awaiting an appropriate launch slot.

The ST Book is a thin notebook computer with mono LCD screen, 20Mb hard disk and a pressure-sensitive joypad used as a mouse-controlling device. Fully STE compatible, the 1Mb RAM Book, upgradeable to 4Mb, has a claimed battery life of fifteen hours and will be pitched to replace the current Stacy portable at a projected price of £690. Atari claims the Book will be available this summer.

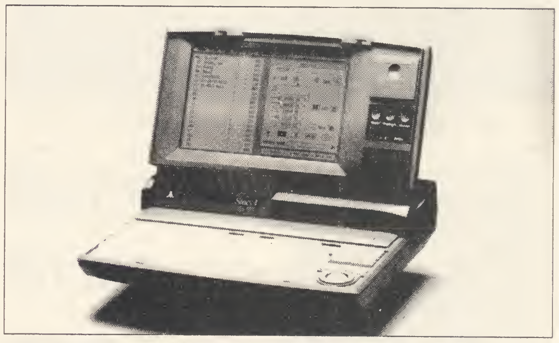
Atari says sales of the luggable Stacy have not been impressive, with 80 per cent of the machines going straight into the music production business.

Atari UK boss Bob Gleadow said that it would be aimed at experienced computer owners, adding that it would be "more attractive" than the widely expected Macintosh notebook.

Atari, in its desire to be regarded as a leader in high technology research and development, also announced that a keyboardless ST notepad is on the way for a mid-summer debut. The matte-black pen input computer, called ST Pad, features a pen-sensitive screen, 1Mb of RAM and employs credit-card memory devices for storage. Handwriting recognition algorithms, similar to those employed in the GridPad, are capable of learning a users' freehand and modified TOS and GEM systems will handle I/O. Standard ST disk drives and printers can also be directly connected. The price-point is expected to be less than £650.

Gleadow said it would be "for people who don't want to become computer literate, people who just want to jot notes".

He concluded, "Our research and development division is back to hyperactivity." ■



• Atari's Stacy: two smaller, more innovative, portables on the way.

Computer porn shocks university

Male students at Victoria University in Wellington, New Zealand have been scolded for using the school's computer network for distributing pornographic pictures.

An inquiry was set up following a complaint from a female student, who said she had been sexually harrassed by the students who were passing the pictures through the network. The students are understood to have downloaded the pornographic pictures from local bulletin boards.

The university's regulations board has now made it illegal to pass pornography through the system. Computing services director Frank March said: "What they did was very childish." ■

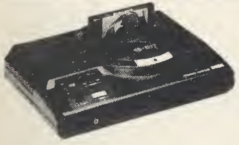
Chaos reigns in gaming awards

The best in adventure gaming was awarded at the Adventurers' Club annual Golden Chalice Awards, held in London last month.

The award for the best overall game went to *Chaos Strikes Back*, by Mirrorsoft/FTL, while the award for best adventure was scooped by *Cadaver*.

Best mail-order adventure was *Last Days of Doom*, and *Chaos Strikes Back* was also voted the best role-playing game. *Sim City* won the award for the best simulation, and best strategy game was awarded to *Midwinter*.

The best national company was Electronic Arts and the best mail-order software company Topologika. More than 600 votes were cast overall by members, which, according to The Adventurers Club, makes these awards one of the most accurate in the adventuring world. ■



Sega winning war for Europe

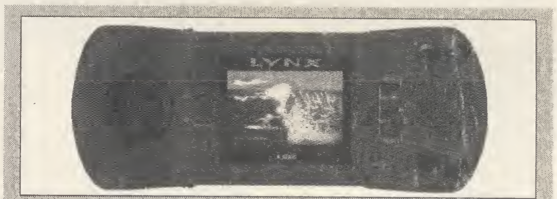
Nintendo may be dominant in Japan and the US, but Europeans have fallen for the charms of Sega.

European distributor Virgin Mastertronic has just published comparative sales figures for the Sega 8-bit, Sega Megadrive and Nintendo Entertainment System.

Virgin says that European sales of the Sega 8-bit have reached 1,415,000 while the Megadrive, only launched officially last September, is holding steady at 193,000. Britain is the biggest Megadrive market with sales of 60,000, followed by France (50) and Germany (30).

Sales of the NES throughout Europe have reached 1,105,000 – 120,000 of those are in the UK. The French are way ahead in 8-bit console gaming, buying 530,000 Nintendo machines and 480,000 Sega 8-bits.

Actual figures for all machines are a deal higher, because of grey imports from the Far East and America. This is especially true with the Megadrive which was available for two years here before its official launch. ■



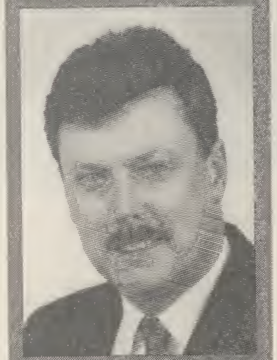
• Lynx: now even cheaper,

Lynx down again

The price of the Lynx, Atari's hand-held games machine, has come down once again. Buyers will now be offered the basic machine (with no accessories) for £79.

The new bundle will be available from April and will complement the £129 option which includes communications cable, AC adaptor and a copy of *California Games*. Or there's the £99 option which just features the machine with power pack. Atari says there are now 16 games available for the Lynx, and promises another 50 over the next year. ■

THE WEEK IN VIEW



• Wauchope: Apple link.

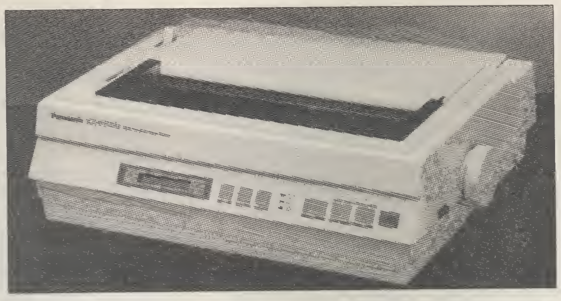
Sam Wauchope, managing director of Acorn, argues that the future for RISC, (and his company) is very rosy.

With reference to your article "Secret RISC talks" (Express 120), I cannot agree with your assessment that the implications of competition in the RISC market are not good for Acorn.

As you report, Acorn Computers has joined forces with Apple Computer and VLSI Technology to launch Advanced RISC Machines Limited. By exploiting the proven RISC technology designs originally developed by Acorn, ARM will address and attack the growing market for low cost, low power, high performance 32-bit RISC chips. Acorn will of course make use of the resultant processors from ARM Ltd.

Unlike the single Intel mould for MS DOS, there is likely to be more than one RISC processor architecture which will lead to new ways of distributing applications and encourage competition across multiple architectures. Acorn will benefit from this new world of software vendors.

ARM Ltd is a partner in the Open Microsystems Initiative, which will provide Europe with a credible position in the world marketplace. With over 1,200 applications already running under the ARM RISC architecture and with over 110,000 Archimedes workstations in the marketplace, Acorn is already well placed as a front runner in the new and exciting world of RISC applications. ■



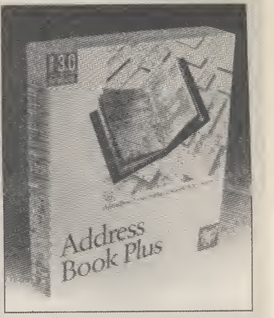
• Panasonic's newest 24-pin dot matrix printer, the snappily named KX-P1124i, will replace the popular 1124 model.

It offers new Super Letter Quality Font along with seven other fonts and can provide over 172,000 different type styles. Panasonic claims it is significantly faster than its predecessor – it can whizz along at 300cps in draft mode. It's out now and costs £365. Call 0344 853915.

Get organised, get an upgrade

Budget business software firm Power Up has launched upgrades to its PC programs *Calendar Creator Plus* and *Address Book Plus*. Both, the firm claims, will help PC owners stay completely organised.

Both upgrades feature all manner of pretty gadgets such as scalable fonts and PCX graphic. Calendar costs £74.95 while Address retails at £79. Upgraders can obtain the new programs for just under £25. Contact: 0252 376000. ■



Codemasters phone scheme set to beat the cheats

PIRATES SOON TO PAY FOR SINS

A 'pay as you play' scheme for computer gamers has been devised by software house Codemasters, in an attempt to combat piracy.

A small-scale experiment is underway in which a certain number of Codemasters' games contain a secret code which is only activate if the program is copied. Anyone who uses a copied version of the game will be presented with a telephone number when they boot up. By calling the number the gamer will be given the correct code to enter the game.

The telephone message lasts a minute and costs about 33 pence. Gamers will have to call the number every time they switch the game on.

Codemasters chairman Richard Darling told *Express*: "Publishers have been trying to stop piracy for years, but this is a very new idea. It means that if someone wants to play copied versions of our games they will have to pay us."

Darling said that it would be possible to crack through his system, but that the scheme was directed at "casual copiers" rather than hard core pirates.

"At present only a few of our games contain the code, but if the experiment is successful then we'll go ahead. I think other publishers will be interested when they hear about it."

He said that the difficulty is setting up the scheme was "not so much the technical aspect as having the original idea". ■

• Richard Darling: making the pirates pay.

NCR gives charity boy dream PC

A boy who spent £20 on a second-hand computer, only to find it useless, was given a brand new machine by manufacturer NCR, because the company felt sorry for him.

Eleven-year-old Mark Dean, of East London, bought what he thought was a full system from a market stall near his home. But when he took it home he realised it was just a terminal with keyboard. The lad, who is an honorary member of the London Fire Brigade, wrote to NCR asking for help. The generous company swapped his piece of junk for a full colour NCR PC worth £4,500.

Marketing executive Sue Hayward said: "We organised a super swap and gave him an all-colour NCR PC package as well as a printer, in exchange for his Steptoe special."

Mark plans to use the PC to help him with charity work and to aid his father's business. ■

• Mark Dean with his brand new PC

Micro made easy out soon

Herman Hauser, the man who helped build the original BBC micro, has stated that his long awaited 'Book Computer' will be ready by May.

The Cambridge based scientist and boss of the Active Book Company, was speaking at the annual computing lecture at Queen Mary and Westfield College, London. His computer will be operated using an electronic pen, rather than a keyboard. He promised that it would be so easy to use, that anyone could get involved in computing.

"It's time we made computers 'people-literate' instead of having to make people computer literate," he said, adding that a voice activated computer would be his next project.

The Book Computers will incorporate fax, telephone, calculator, dictaphone and diary and will cost about £1,500. ■

386 chip shortage ends with clone entry

PC PRICES SET FOR DOWNTURN

Prices of IBM compatible PCs are expected to drop over the next few months, following the announcement of a 386 chip clone.

Advanced Micro Devices (AMD) has won the rights to manufacture 386 chips, and says it will begin delivering the processors to hardware manufacturers within a matter of weeks. Until now, Intel has enjoyed a monopoly on 386 chips, and this has caused the computer manufacturers considerable difficulties

Some suggest that Intel has failed to deliver sufficient numbers of the chips, thus keeping prices afloat. If chips are readily available the price of 386 PCs will drop, starting off a slump in the prices of 286 and bottom-end 8086 PCs.

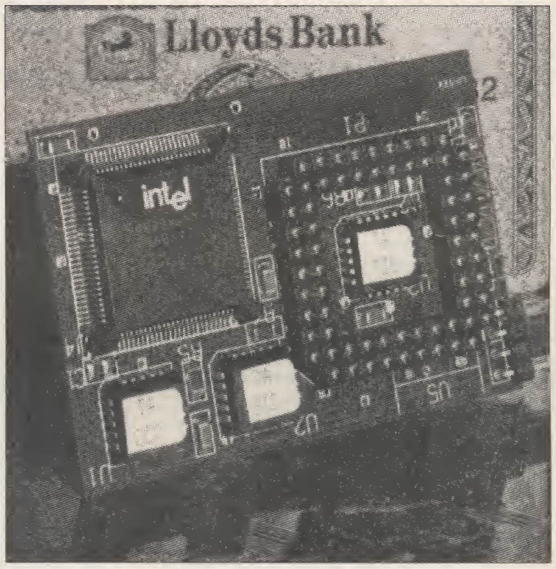
AMD says its 386DX chip will not pose any compatibility problems and claims that Intel cannot stall the release schedule by dragging the issue into a lawcourt. Not surprisingly, Intel is less than happy that its monopoly has been broken.

However, last week AMD was awarded the right to use the 386 name for its chips by US District Court Judge William Ingram. He said that 386 was not a trademark and "in consequence there can be no infringement thereof".

AMD will be launching the normal 25MHz and 33MHz 386 chips as well as an 'Intel beating' 40MHz version. Hardware manufacturers have already expressed interest.

Commodore's Jamie Minotto said the firm would be considering a deal.

Brian Jackson of Logix commented: "This means that the 286 will fill the role of the 8086, while the 386 will take the place of the 286." ■



• Chips are down: 386 clone means full availability and lower prices.

• Ashdown: on-line.

Paddy's party links up

Paddy Ashdown is feeling pretty pleased with himself after scoring a few points over his Parliamentary pals at the recent Ribble Valley by-election.

During the uncertain hours of by-election confusion, the Liberal Democrats were cosily linked up to a network of PCs running comms package Diskfax. The Ribble Valley office could send and receive information from head office throughout the day. Ashdown was so impressed with the system that he's linked up his Yeovil constituency office to the network.

Diskfax sends information down telephone lines at a rate of 40 A4 pages every 90 seconds (cost £1).

The earnest party leader spouted: "We are convinced that this product will help give us an edge over the other parties in the speed with which we can distribute and analyse computer based information. It is vital that the Liberal Democrats keep abreast of technology." ■

Wild Wonderland

Virgin's wild adventure game *Wonderland*, is to be released in half Megabyte form for the ST, Amiga and Archimedes.

Previously, the game had only been available as a 1 Mb extravaganza for the PC. But developer Magnetic Scrolls says the new versions will be out in a matter of weeks. *Wonderland* features many of the crazy characters in Lewis Carroll's timeless novel *Alice in Wonderland.*

Mag Scrolls boss Anita Sinclair enthused: "When we told people about *Wonderland*, we didn't think that we would be able to squeeze it onto a half Meg. So, what we have done is cut out some text and graphics."

I'm just hoping that these versions will be as successful as the PC game, which has been selling very well since its launch in September."

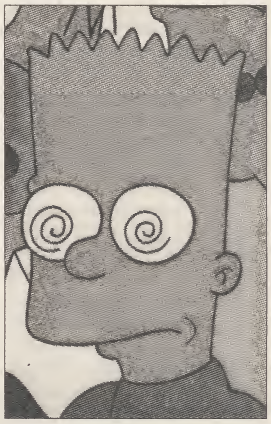
Gamers need not worry about buying a cut down version. *Wonderland* is an absolutely huge piece of interactive fun. ■

Bart's on top

The Simpsons, featuring Bart the brat, is currently the most popular game in the world.

The game has completely out sold everything else on the Nintendo system in the US, and a Super Famicom version is being developed.

Ocean expects to launch home computer versions in time for Christmas. ■



Scan in on 18-bit hand-held

Marstek is set to launch what it claims is "the industry's first 18-bit colour/grey scale hand scanner" for the PC and Macintosh.

The Marstek ColorArtist's extra capabilities allow it to deal with 262,144 colour combinations. It can also provide 400 dots per inch grey-scale capabilitity for text or line-art applications.

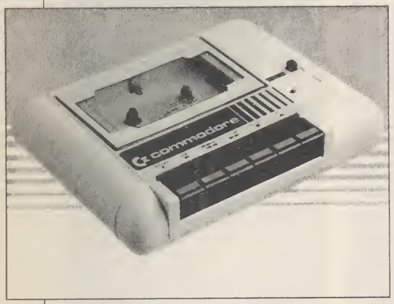
The firm points out that most scanners currently available can only boast a maximum of 12-bits per pixel. ColorArtist costs £349 and comes with a colour scanning, painting and image program. Call Marstek on 0908 690880. ■

• ColorArtistL: colour and grey 18-bit style.

Datacorder is dropped from Commodore 64 bundle

IS THE C64 AT THE END OF ITS REIGN?

The C64 the world's biggest selling home micro will no longer be sold with the important datacorder. Sean Masterton asks: is this the end of the line?



The home computer industry closed a door on its past last week when Commodore announced that it would be ceasing to bundle the C2N data cassette recorder – also known as the datacorder – with new purchases of the 64. The C2N has been the standard storage medium of the Commodore 64 micro for the last nine years. The last C64 bundles containing a datacorder will have probably made their way to high streets by the end of July.

From the beginning of August, the C64 will be sold without a standard data storage medium other than that offered by the £159 disk drive, the 1541 MkII. However, the C64 will continue to be sold at a new lower price of £119.99, complete with the Commodore Joystick Pack (consisting of four games on a cartridge and two two-switch joysticks) which up until now was bundled with the C64GS console and sold separately for £24.95. A separately available datacorder retailing at £50 effectively means that last year's C64 package has had a £20 price hike. The C64GS will continue to sell at £99.99.

The 64's new price point means that, as Commodore national sales manager Kelly Sumner pointed out: "For £20 more (than the console machine) people can get a real computer".

The C64GS, launched last autumn with designs on being a Christmas hit, did very badly over the winter months, with Commodore itself being able to say no more about its performance than "it sold nearly 20,000 units," over Christmas. Commodore was luckier than Amstrad with its new machine.

RECORD OF UNRELIABILITY

The C2N actually arrived some time before the launch of the 64 in 1982. The dedicated cassette recorder was originally designed to work with the C64's immediate predecessor, the VIC 20 micro, a 2-24K machine (depending on the upgrade you bought with it). But for its entire ten year history the device has been perceived as a drag by both dealers and users alike. Tens of thousands of faulty machines have been returned over the years, a situation which must surely have been considered by Commodore prior to its decision to drop them from the C64 packs.

Problems with the unit have been compounded by its sensitivity to crucial set-up conditions such as azimuth alignment, a problem which still causes many people to assume in the first instance that their datacorder isn't working. It doesn't seem surprising that Commodore has decided to discontinue the device. However, it does make you think why they didn't do it earlier.

WHERE TO FIND A C2N

Well, until July at least, you'll still be able to pick up a C2N almost anywhere that you can find a 64. Most of the machines in the shops will be part of C64 bundles.

The C2N used to be available only as an extra, but Commodore has been including it as part of standard C64 packages for some years now (at least, until now). It's likely that after that, the boxed C2N will find refuge among the mail order peripheral dealers who will find that they can buy the peripherals cheaply and in large numbers. Don't expect to have to pay £50 for one for long. However, the chances of high street retailers, who hold on to stocks of the 64 keeping significant quantities of a separate tape recorder, are slim. The C2N has crossed even more counters to and from repair than it has done by being sold.

Some pundits see the move to end bundling the C2N as a way of pushing people towards buying cartridges, though they doubt whether this will in fact happen. "It will encourage third parties to provide the equivalent of the datacorder," said one. Many others believe that, just as there will still be people who buy a cartridge based console because that's all they want, the perception that a real computer could be within the grasp of a potential purchaser will persuade many to continue to buy the C64 as their entry level machine.

It will be Christmas or early next year before the truth is known. People have come to expect great things of the 64 come Christmas time. It may well be that the absence of the C2N is proved to be entirely inconsequential, if not beneficial to sales of the C64 itself.

SOFTWARE SUPPORT

On the one hand, people who buy the new cartridge based C64 bundle are going to be given a glimpse of the potential of that medium from the moment they unpack their machine. This situation is likely to be encouraged and exploited by software houses such as System 3 and Ocean, both which have shown to be fully behind last year's launch of the C64GS and Commodore's call for cartridge support.

However, the March Commodore 64 software chart revealed that there were only 20 full priced items in the top one hundred and that of these, only a couple were on cartridge format. The other 80 placings in the listing were occupied exclusively by budget priced games on cassette. But it's unlikely that the new move by Commodore will cause concern for software houses who publish on the medium, perhaps to the exclusion of any others. The main reason is that there is still a massive active user base, a substantial proportion of which thrives on such software. Cartridge sales may well be boosted by people who buy the C64 or GS around Christmas 1991, but there will not be a correspondingly detrimental effect on the prospect of sales of cassette based software.

NO EFFECT ON 'STABLE' USERS

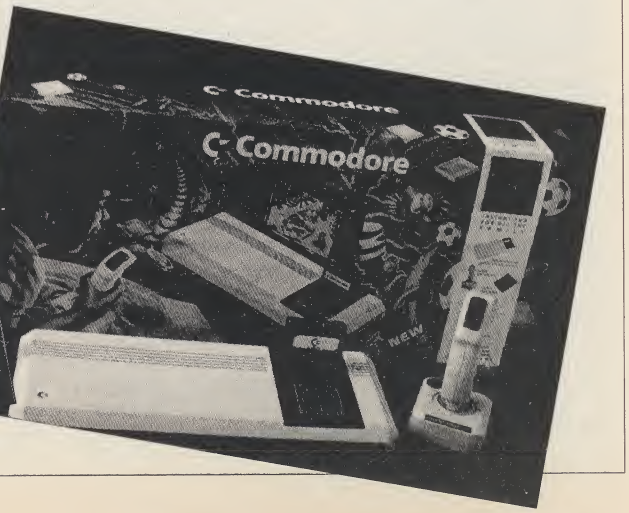
Express talked to the chairman of the International Commodore Product User Group (ICPUG) Jack Cohen about the decision to drop the C2N. He didn't see dire consequences for the user resulting from the developing situation, though he did appreciate that new owners might find it more difficult to learn about their machine by learning to program without being able to store their listings. Nevertheless, "It may be a good thing," said Cohen, moving on to consider the possible efforts of third party enterprises. "The thing about the C2N was that it checked everything twice." And without the C2N to force a snail's pace on software loading, "fast loading cassette units could be popular."

Most users go to ICPUG once they're already users of some experience. "About 50 per cent of our members have C64s, at least if you include owners of the 128 who can't find software available outside. About 8-900 have cassette players – but there are probably more who never mention that they own one.

"Almost every member has a disk drive and only uses cassette when the software isn't available on any other medium." Cohen said that the C64 user base within ICPUG was stable and that he hadn't heard any complaints about Commodore's decision. ■

Commodore
NIGHT MOVES

• The C64 with disk drive as we used to know and love it.



•(Far right) The C64GS console – C64's future.

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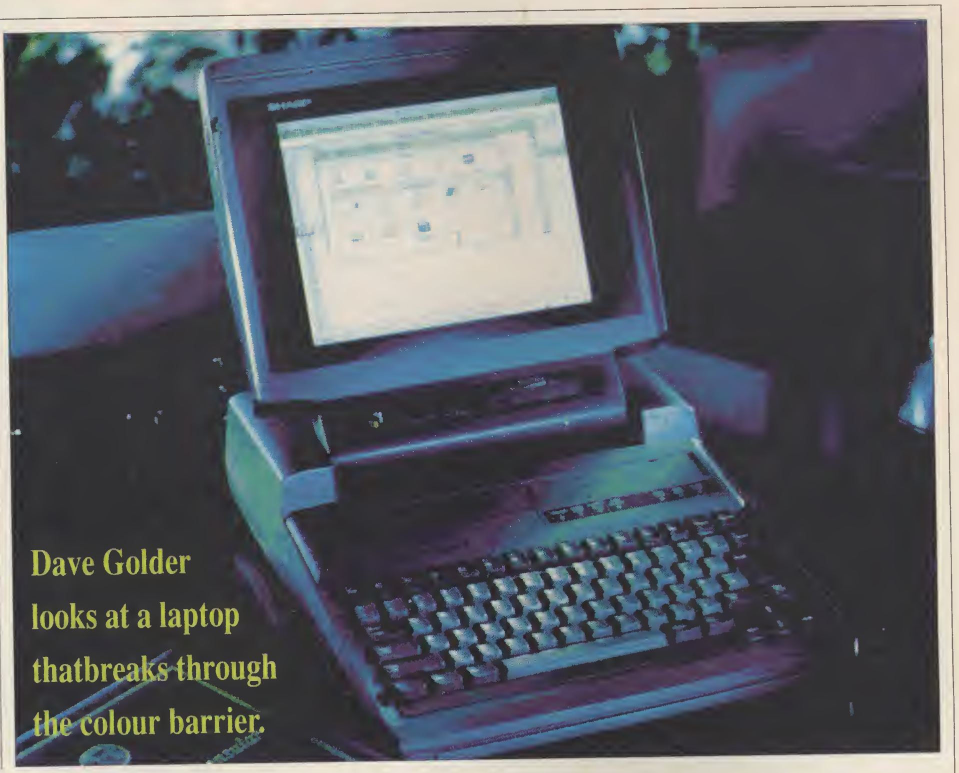
Commodore

THERE'S A LITTLE BIT OF COMMODORE IN ALL OF US

SHARP SCREENS



Dave Golder looks at a laptop thatbreaks through the colour barrier.

One of the limitations of laptop computers which has always prevented them from truly becoming portable versions of their desktop counterparts is their colour capabilities. The trusty old cathode ray tube (CRT) favoured by PCs that tend to stay put have remained obstinately defiant of miniaturisation and the alternative, LCD, is fine for black and white displays, but leaves a lot to be desired when it comes to colour.

However, it seems that Sharp has finally removed this barrier with the release of the PC-8501 colour portable which boasts a display that not only matches the quality of its desktop relatives, but arguably improves on it.

The PC-8501 colour screen is based on Sharp's own established illuminated triple supertwist LCD system with Hot Cathode Fluorescent Tube (HCFT) backlight, but the incredible sharpness and response speed is the result of a technique called Thin Film Transistor (TFT) technology. Basically, the screen uses 921,600 transistors to switch each colour on or off for each individual pixel. The display offers VGA graphics resolution supporting up to 256 colours simultaneously out of a palette of 262,155.

The result is stunning, not just in terms of portables but even when compared with normal CRT displays. The images are crisp and incredibly well-defined and the colours positively glow. Traditionally, colour on LCD has been rather wishy-washy and unsubtle, but on the PC-8501 they are deep, bold and well able to cope with gradations of tone or the differences between light and shade. All this and no loss of clarity or definition at the edges of the screen either.

Sharp also seems, to a large extent, to have eliminated another problem inherent with LCD screens, that being that usually you have to look at them straight on, as from an angle the display becomes unintelligible. With the PC-8501, though, you can quite happily view the screen from any angle with little loss of quality.

Sharp has also included a couple of pleasing features to further enhance the display. There is a switchable soft focus feature for scanned images designed especially for use with presentation applications, the results of which are generally impressive, and text and graphics are automatically centred.

In addition, the PC-8501 screen has all the usual advantages of LCD displays, including lower power consumption, no screen static (so you won't be wiping dust off it all the time) and, since it is not updated by scanning like CRT screens, there is no flickering.

NOT JUST A PRETTY SCREEN

Aside from the impressive colour capabilities of the PC-8501, the laptop is also a high performance 386 portable in its own right (see the accompanying box for specifications) with a whopping 100Mb hard disk and MS-DOS 4.01, GW BASIC 3.23 and Shell 1.01 being supplied as standard.

Weighing in at a not too arm stretching 14.3 pounds the PC-8501 comes in a very stylish grey/blue case which Sharp refers to as clamshell-style. The keyboard is full sized and step sculptured making it very comfortable to use. Also, with the floppy drive at the side towards the back, when the computer is on a desktop, the keyboard is low to the surface so you don't break your wrists when typing as with some laptops with the drive at the front.

A couple of minor quibbles are more annoying because of the overall quality of the machine. One is that the carrying handle could benefit from a more ergonomic design to make it a bit more comfortable in the hand. The other is that the numerals and letters on the keys are not etched on, but are merely transfers which could mean that they will begin to wear away before not too very long.

One major drawback, though, is that it has no internal battery; it has to be powered from the mains. So while it is portable, it is hardly a laptop. You won't see Mr Smith on the 8.20am from Orpington working out his end of year taxes on it.

THE BEGINNING OF THE END?

Nevertheless, Sharp reckons that the PC-8501 could spell the beginning of the end for the desktop, and it could have a point. There seems little that a standard PC could do that machines such as this could not do just as well, with the advantage of the added bonus of being portable.

However, this won't happen too soon because there is one final catch; the price. At around £8,000 it will still be more economical for a businessman to buy both a colour desktop PC and a black and white portable.

At the moment, then, aside from targeting senior professional PC users with money to throw around, Sharp is pitching the PC-8501 as the ideal sales presentation tool for travelling reps and a vital tool for any other professional who has to visit and impress various clients, such as management and financial consultants.

But the PC-8501 is a breakthrough product, and its real value is in setting the standard for other colour portables to follow. And once they do, expect to see the prices come tumbling.

In the meantime, the PC-8501 will start shipping mid-spring and will initially be available in limited quantities. So if you think your company's budget can stretch to this state of the art piece of equipment, contact your local Sharp dealer or telephone the company on 061 205 2333. ■

SPECIFICATIONS

The PC 8501 is a full 32-bit 80386DX computer running at 8MHz/20MHz switchable with no wait states and an easily accessible socket for an 80387 co-processor. It features 2Mb of fast (80ns) RAM as standard, upgradable to 10Mb in increments of 2Mb. As well as an industry standard 3.5-inch 1.44Mb floppy disk drive, the PC-8500 has a 100Mb auto-parking hard disk with an average access time of 17 miliseconds.

It contains two 9-pin male (DB-9 connectors) serial (RS232) ports with full duplex asynchronomous transmission up to 9600 baud along with a DIP switchable parallel (Centronics) printer/External floppy disk drive port (25-pin female DB-25 connector), a CRT 15-pin analogue port and a numeric keyboard port (9-pin female circular mini DIN type).

An AT bus 16-/8-bit half size slot and a dedicated modem/fax slot are also included. For processing flexibility the motherboard contains an Intel 80387-20 maths co-processor.

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Amiga fan

After reading the letter from John Goldsmith in *Express* 121 and his list of essentials for using the Amiga, I would like to make the following comments:

1) The reason Commodore put Workbench on disk rather than on ROM is so that you can obtain upgrades without having to obtain and fit expensive ROMs. Also, the Workbench can be customised to your requirements from the start-up sequence, which would not be possible if it were ROM-based.

2) Amiga disk drives are less efficient than they could be owing to the fact that files are saved in a format that is more secure than the formats used on other computers that I could mention.

If the disk directory becomes corrupt, then *DiskDoctor* (supplied on Workbench and accessible from the CLI) can be used to repair and salvage files. If this problem occurs on the ST (*I thought you weren't going to mention other computers – HFW)* then you can be in serious trouble... The extra information stored on disk increases the amount of time that a disk takes to be accessed, but your data is more secure. I know which I prefer.

3) The BASIC editor IS poor, but it is free and serves its purpose for casual use. For serious work, I use the excellent HiSoft BASIC, which is a compiled language with a nice, easy-to-use editor. Programs written in this language can be sent over to the Atari ST and recompiled on that machine with very little modification.

AmigaBASIC does not discriminate against 'Y' graph co-ordinates, as it would not know a graph if it fell on its head, but does have a graphics origin in the top left hand corner of the screen! Is that what you are complaining about Mr Goldsmith? If only all programming problems were so simple to overcome.

4) Some programmers crunch their programs on to the disk, cramming much more onto it that it would normally hold. To show that they are 'de-crunching' the information they sometimes produce patterns on the screen - which is not a feature or even a bug in the Amiga's operating system. Programs that produce loading screens then blank screens are probably pirate copies.

5) As for your Amiga crashing every few minutes when you are looking at PD software then you either have a virus or should obtain better software. I have an Amiga which is in use about ten hours a day, multitasking all the time. I only get a crash if the machine code program I am writing does what it was told to and not what I had thought I had told it to.

Sure, the Amiga does have faults, but I reckon Mr Goldsmith looks out of narrow glasses with a biased view...

David Batty, Sector Software, Lancashire

Right. That's enough correspondence in defence of the Amiga. It's quite popular enough to look after itself.

H F-W

For the record...

I wish to correct an article which appeared in *Express* 118 in which reference was made to the *Hands On Experience*. It contained a number of inaccuracies and ambiguities that I would like to clarify. You stated that the MIDI song data manufactured by Hands On MIDI software is only available as dedicated Atari Steinberg *Pro 24* song files.

This is incorrect. We supply all songs to our customers in two ways. One song file is dedicated *Pro 24* (as you stated) and the other is a standard MIDI file format version. The inclusion of the standard MIDI file means that the songs can be used by owners of other sequencing packages such as *Creator*, *Notator*, *Virtuoso*, *Sequencer One*, *Tiger Cub*, *KCS* and so on.

As far as Steinberg's *Cubase* and *Cubeat* are concerned, not only can these standard MIDI files be used, but these two packages can also load dedicated *Pro 24* song files directly.

And finally... the Hands on range of MIDI song files are also available for the IBM PC as well as for the Atari.

David Clackett, managing director,
Hands On MIDI Software Ltd

Pleased to be of service David. In Andy Hutchinson's defence I would point out that the press release you sent him didn't make matters as clear as your letter now has – Andy included a mention of your product on the basis of the information he was sent.

H F-W

Price bullies

I write to give my opinion on the high price of electronics from America and the Far East. In Japan you can now pick up a mono Nintendo Gameboy for a mere £20. In the US the same unit costs £40, yet in Britain it sells for £70. Another example is the Sega Genesis or MegaDrive – which costs £70 in Japan, £90 in the US and £180 over here. To make matters worse, games cost 50 per cent more in the UK.

A certain mark-up is to be expected for the addition of VAT, shipping and import duty – and if these were added to the American price of the Genesis, then we should expect to be paying about £140.

Why are we being bullied into paying extortionate prices when our American and Japanese cousins are paying on average 180 per cent less than us?

Simon Richards, Twickenham

First off, I don't know if what you say is true – but if it is, I reckon much of the price differential can be explained by 'market maturity'. Listen up.

When a new product is launched, an astute marketing department will price it high – when it comes to electronic kit, you can always find a lot of people who want to own the latest thing and are prepared to pay a high price for it. After a little while, when all these non-price-conscious people have snapped up your new product at a premium price you then reduce the retail price, thereby encouraging more people to buy.

The technique is called 'skimming the market', and applied astutely can lead to much greater profits and much better cashflow for a manufacturer who has to fund product development and initial advertising.

The fact that Nintendos and Genesis/Megadrives have been on sale for much longer in Japan and America than they have in the UK probably accounts for the price differential.

And the longer a product is on sale, the harder time it has competing on price, because products from other manufacturers arrive that offer similar or better features. Track the pricing of the Commodore 64 over its lifetime if you want a nice clear example of these effects.

You might find that, in real terms, these products were once as expensive overseas as they are now in the UK. Wait and watch the prices fall...

H F-W

Sound argument?

In *Express* 117 a chap called 'Sunny Yorkshire' wrote into Tech Tips about PC emulators for the Archimedes. He also said: 'I would like to give a note to software houses who ignore the Archimedes totally – don't. This machine is far more powerful than the 16-bits and offers improvements in both the sound and graphics departments. The sound consists of eight-channel stereo (compared to the Amiga's four and the Atari's three)'

Personally, I'm sick of people saying

that when the STE has an eight-channel stereo sound chip, just like the Archimedes. I'm also sick to death of people calling the ST the Atari – after all, people don't call the Amiga the Commodore and the Archimedes the Acorn and the CPC the Amstrad, the Mac the Apple and so on.
Adam Bullock, Witby, North Yorkshire

Oh dear! At the risk of annoying you further I have to point out that the ST features the YM2149 sound chip which offers three tone channels and one noise channel that can be mixed together. Unless I've got it horribly wrong, the STE contains an extra chip that acts as a sample driver under DMA and offers two-channel sound 'intended to be used as the left and right channels for stereo output according to the developers' documentation. Which rather sounds like three-channel tone output mixed to the left and right channels.

On the other hand, the Archimedes offers the VIDC chip – a proprietary device that takes care of sound and graphics on the Archie, and it's part of the ARM set of RISC chips. Two kinds of digital sound generation are supported – 8-bit linear and 12-bit logarithmic. All sound is built up from digital samples – wave-generated computer samples can be used as standard, but you can also take real samples. The really cunning bit is that if you sample just one note of a sound (or an instrument) then the VIDC extrapolates all the other notes from that!

And there's more. The Archimedes has true eight-channel sound, in the sense that it can play eight sounds at once. Each of those eight sounds can be positioned at one of eight positions between full left and full right, so you can achieve some stunning special audio effects.

H F-W

■ Young PC fan

I am writing to say that I have looked in all computer mags and *Express* is the only one that writes about IBM PCs, but I think you write too little.

I'm not asking for you to write loads just about PCs, as I like reading about other computers as well – but I'm sure if you put a games section in for all computers you write about more and more people would buy your mag.
Matthew Bramley, Little Clacton, Essex

Hah! Have you never heard of the excellent *PC Plus*? Go out and ask your newsagent for a copy right away.

The good news is that we're having a PC supplement with *Express* 129 (in the shops on April 25) and amongst the goodies on offer will be two pages on PC games written by John Minson, who is the *PC Plus* games expert. End of commercial, on to next correspondent...

H F-W

■ Boot-up request

How about giving your competition setter a swift boot up the bum! For the first time in ages I decided to risk the cost of a stamp and enter the two competitions linked with *Express* 121.

First up *(Are you talking about boot here? – H F-W)* was the *Powermonger* comp run in conjunction with EA. Going by the reviews, this was a product well worth having. All went well, until the elusive question that I should have found between question 7 and question 9. I know I have been out of school for quite some time now, but I'm fairly sure the number '8' is still in common usage, Can your comp setter count up to ten properly? If not, may I suggest one of the *Fun School* series – my five-year-old son thinks they're great.

Next one to enter was the simulation competition for *Tower FRA* from Thalin. Questions 1, 3 and 4 were OK, but I had a bit of trouble with 2 and 5.

Question 2 asked about a 'fighter' plane, and I presume the answer is 'C' but the TSR2 was not thought of as a fighter: Tactical Strike and Reconnaissance Mach 2. Bomber and recce versions were envisaged and indeed via the MRCA they came to fruition as the Tornado ADV and IDS.

Question 5 was surely written wrong. It should have said 'Which of these places does have an airport?' Blackpool does, according to one of my colleagues who comes from the place, Stoke doesn't, Salmesbury has never had an airport, the only thing we could think of at Wythenshaw is the hospital.

By the way, I work for the BAe, part of which Is as Salmesbury, and live about a mile from Blackpool.
Colin Robertson, Blackpool, Lancashire

Simple answers to your questions really, Colin. Tim Smith (who set the *Powermonger* comp) is allergic to octal. Keith Pomfret (who set the *Tower FRA* comp) has got a strange idea about what constitutes a 'trick' question and is a great fan of the double negative (with extra fries, usually).

Size 10 editorial Oxford brogues have been applied in both cases.

H F-W

■ Dispelling gloom

I just thought I'd write and take away some of the doom and gloom of mail order advertisers. I've had some very nice experiences with some mail order firms, if you'll pardon the expression! (Cue crap joke about 'male order firms' - **HF-W**)

First, there's Evesham Micros. If there's one firm I'd recommend, then Evesham Micros gets my vote. Secondly, coming pretty close, is Best Prices - who are amazingly quick and pretty cheap too. Thirdly comes Ramara House Software. I ordered from them by telephone one evening and they arrived the next day!

By the way, if anyone would like a catalogue for my PD library send three first class stamps to Gunning PD Library, 47 Auchingane, The Tryst, Edinburgh EH10 7HX. There are over 200 disks of ST PD and they cost £1.00 each.
Peter Gunning

These free commercials will have to end!

H F-W

■ Witty and urbane editor consorts with stars of silver screen

I know it's been a longish while, but here's a snap we took during the launch party for *Disney Animation Studio* at the CES Show last September.

Just thought you'd all like to see how your leader performs in front of the paparazzi!
Marisa Pauwels, Entertainment International

Cheers Marisa. But which Disney cartoon starred that scruffy-looking character in the suit and tie?

I'll send a fiver to any reader who can supply me with a picture of him or herself in the company of a famous person or character...

H F-W

• With glass in hand, our illustrious leader meets two cartoon heroes.

MAIL SHORTS

■ Blue pencil

I am writing to protest at the manner in which you edited my letter in *Express* 122. By editing it in such a way, you totally missed
Phillip Muldoon, Dyfed, South Wales

Oh dear. And now it's happened again!

H F-W

■ Obscene on screen...

I thought I'd let you know about a video – but many of your readers will not be allowed to see it. The 18-rated *Vision X number 2* features a scene with Einstein and a young lady 'robot'. The controlling computer is a BBC micro, which is topless, but then so are the rest of the cast!
'Anon' Suffolk

Hmm. Under the new rules for Seen on Screen it's fivers only for multiple spottings. So get hunting through your video collection Mr G and find some more or I might just print your full name...

H F-W

■ Price rise blues

I don't remember you letting your readers know the price was going up, and I read your mag from cover to cover – it's a bit naughty, isn't it, not telling us that *Express* was going up 18 pence? How can you justify the rise? I think you're going to lose a lot of loyal readers, including me...
G E Robins, Camberley, Surrey

I'm not sure 'naughty' is quite the right word, but I understand what you mean. We should have told you all, we meant to tell you all, but in the flurry of completing the Amiga Supplement the piece just didn't get written. So I'll take a bit more space than usual in 'Shorts' to explain.

I won't twitter on about 'rising costs', 'current economic climate' and so on (although they do play a part).

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H F-W

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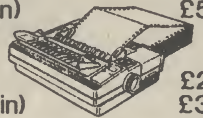

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Macintosh

RUMOURS...

Sources in the States suggest that the Mac SE/30 and IIci might be next in line for price cuts; reportedly, Apple is about to cut the price of the Mac IIci by around $700, while the SE/30 will drop in price by as much as $1,000.

Meanwhile, Apple has set a definite launch date for System 7.0. May 13, the first day of the Apple Worldwide Developers' Conference, is the magic date, after which, theoretically, the new System will be immediately available worldwide. But in a change from normal policy, Apple won't make the System available through on-line bulletin boards like CompuServe; instead it will only be on sale through dealers, and will cost you anything up to £60. It will ship on 800K floppies, and will come with a HyperCard stack which will look through your hard disk and tell you which applications, DAs, INITs and so on will work with the new System.

Our recommendation? Wait another month or two until System 7.0.1 comes out – there are bound to be bugs in the first one...

Talking of programs which scan your hard disk, there have been rumours around for some months now that programs exist which can do just this and collect information on exactly what software you have – information which someone else can then use. For a while it was thought that the AppleLink software required to connect to Apple's bulletin board scanned a user's hard disk the first time that it was booted and then transmitted the information when the user connected to the bulletin board. However, Apple denied the rumour, saying that it would have no use for the information.

Another such program is apparently the installer for *Quark XPress 3.0*. This program requires users to complete a 'registration disk', which has an application that asks for things like your name and address, where you bought the program and so on. The data is stored on the disk, which you then send to Quark's office in Ireland. But it seems that the 'questionnaire application' also scans your hard disk while it's asking you the questions, and keeps that information on the disk so that Quark can extract it later.

However, people worried about privacy of information needn't worry too much. The questionnaire has been altered from the one shipped with *XPress* in the States, but no-one had thought to alter the application which read all the details back off the disk at Quark's offices. So for a long time, the offices in Ireland were full of thousands of disks containing loads of information which they couldn't read...

ATM – WHAT ON EARTH IS IT?

Recently, people have been writing in asking what on earth ATM is; it's being mentioned more and more, especially in articles about the new Mac printers. So here's the low down:

ATM stands for Adobe Type Manager. Its purpose is to replace the jagged screen fonts which the Mac normally displays with far smoother, more accurate versions. It also allows anyone with a *QuickDraw* printer to output PostScript fonts at high quality.

Although TrueType fonts will automatically output at high quality from a *QuickDraw* device, ATM is the only solution you have for getting PostScript fonts to look good on printouts from the two new Apple printers.

It's a combination of INIT and CDEV, which means you just stick it in your System folder and restart your Mac. It slows the display down slightly, but the extra quality you get is worth it.

If you've got any PostScript Type 1 fonts (ATM doesn't work with Type 3 fonts) and a *QuickDraw* printer, ATM is a worthwhile investment; it costs about

POSTCARD FROM AMERICA

Someday, when my ship comes in, I'll have the spare cash to follow the MacWorld Exposition trail around the globe. I'd be a MacWorld tour groupie, bothering poor sales representatives in a dozen countries, trying to give their non-localised presentations to a confused crowd. I was passed something that tells me that the Tokyo Expo will be great. Don't laugh, but it's the show badges.

One of the worst things about the last few US Expos has been the ridiculous holders for name badges. They're looped on flimsy elastic strings, that don't last a minute in the bargain-basement-sale atmosphere of the show floor. By the end of the day, a busy booth will sport a collection of at least a dozen badges.

This is fine if you're running a booth, and have a bus load of friends who just happen to want free passes. But not for the poor attendees who have to stand in line to re-register.

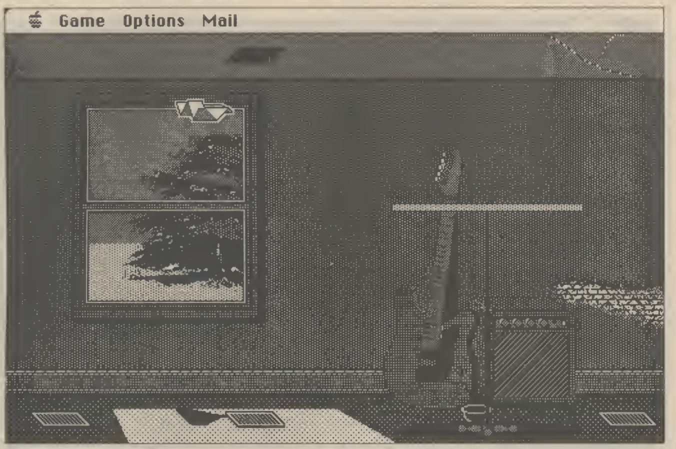
The Tokyo model has both a plastic alligator clip with teeth, and a safety pin so if you don't have a pocket on your jacket, shirt, or blouse, this model will do the trick. It doesn't necessitate pulling out scissors and tape for major badge surgery.

A common source of Mac-frustration is the order of files while viewing by name in the Finder, and in dialog boxes. Users often begin file names with a date, but the files will not list correctly!

Unfortunately, the year is ignored, so that days clump together. For example, January 11 1990 and 1991 will come before January 12 1989. This happens both in the American date convention – month/day/year – and in the UK day/month/year version. The Finder doesn't think of this string of characters as a date, but follows the ASCII codes for the string. You'll find that formatting the date in year/month/day order will keep the files in correct chronological sequence. Be certain, as well, to use a zero in front of single digit numbers.

It's easy to bring a particular file, or group of files to the beginning of the list. Just place an Option+Space in front of the name, and it will fly to the top.

David Morgenstern



• Glider Plus 3.0: *If you were never any good at making paper planes, this one's for you.*

£70, although Camelot Computers (0734 591500) sells it for £49.

On the other hand, you could just buy TrueType fonts instead...

GLIDER PLUS 3.0

Following on in our occasional series of dead smart shareware and PD games, check out *Glider Plus 3.0.* You control a paper glider or dart, which you must manoeuvre through a series of rooms, avoiding tables, chairs and other obstacles. Your can only make the dart go backwards or forwards; to gain height you have to hover it over a hot-air vent or a candle (but be warned – crashing into the candle will incinerate the thing).

Glider Plus has been popular since it first appeared a year or so ago; version 3.0 has some new features, including many more rooms, and is far more difficult to complete.

As usual, it's available from on-line bulletin boards like CIX (in the 'mac' conference, 'files' topic) or from shareware distributors. The shareware fee is $8 or "whatever you feel is appropriate", according to the author. Oh, and the anti-sexists amongst you should avert your eyes from the screen for the first three seconds after the program has been launched – a piccy of a topless woman appears as the program loads.

Ian Wrigley

PC

SOFTWARE PRICES UP?

I reckon that we are in the midst of another round of price rises at the moment, though rather than it happening in one fell swoop, it is being sneaked in here and there...

US Gold is one of the culprits. The company has already booted full-price tape software up to £10.99, and now is repeating the exercise with its budget label, Kixx. Not to £10.99, though, I hasten too add. Instead, from now on Kixx games will retail for £3.99 – a whacking 33 per cent increase!

Mind you, US Gold is sugaring the pill with a special deal on some of its back-catalogue budget titles. With each new £3.99 game you get a card listing another 22, all of which can be bought for a mere 99p when you send in the card and your dosh.

TOO MUCH COLOUR?

A colour monitor may be just the ticket for games-playing, but there must be many a serious user cursing the things. One advantage of the old green screen is that word processing, for a start, is much more pleasant, because the mono monitor's colours are a more restful green-on-black – and the individual characters are much sharper, too.

With a colour screen *Protext*, for example, loads up with a bright blue background and brilliant yellow text. Instant migraine!

However, there is a way around this. A short BASIC loader will let you change the colours before the program loads. The one I use goes as follows:

```
10 border 0:ink 0,0:ink 1,15
20 run"disc
```

Easy, huh? The first line sets the border and background to black and the foreground colour to amber. The ink commands take the form of two numbers separated by a comma. The first number is either 0 or 1, and tells the computer whether you are setting the background or foreground colour,

CPC MASTER COLOUR CHART

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5	mauve	14	pastel blue	23	pastel cyan
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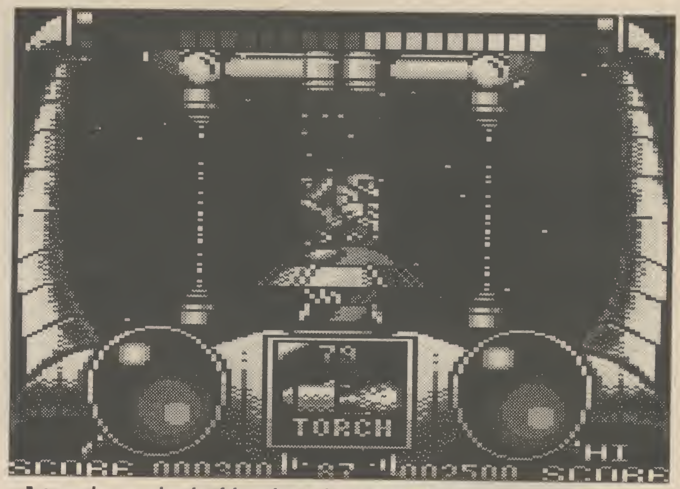


• *Extreme has superb, colourful graphics – they move well too.*

while the second number defines the colour itself.

CPC6128s have a 'Master Colour Chart' printed on the top of the disk drive housing, and this tells you the colours available and their corresponding numbers. For those who haven't got a CPC6128 see the accompanying box for a complete list.

This loader will only work, however, with programs that don't set their own palette as they load. However, it works with the AmsDOS version of *Protext* and may work with many more programs. Give it a go – you might just save yourself a few headaches, literally!

EXTREME

Digital Integration, best known for its military simulations, has just come out with *Extreme*, a game which is a real departure from its usual fare.

When you first load up *Extreme*, it's like stepping back in time to Speccy and Amstrad games of the mid-'80s. That doesn't mean it's technically inferior. What I'm actually referring to is the fact that it's totally original.

I'd better explain that term for the benefit of the uninitiated – it means that the game doesn't get its inspiration from an arcade parent, from a film, from a book, a car, a character or even another game. Instead, the programmers have actually developed their own storyline! Extraordinary...

In the first level you have to scoot about in a spaceship, avoiding nasty creatures and boiling lava and generally finding your way about. Your ultimate aim is to locate an energy crystal and tow it back to a special receptacle. Every time you take a hit you lose energy, and to cap it all you're up against a vicious time limit, too.

Level One is crammed with puzzles and hazards, and there's a fair bit of exploring to do. Level Two is a bit more straightforward, though – you have to get from one end of the level to the next through a giant fish tank. The fish tank, not surprisingly, is filled with killer fish...

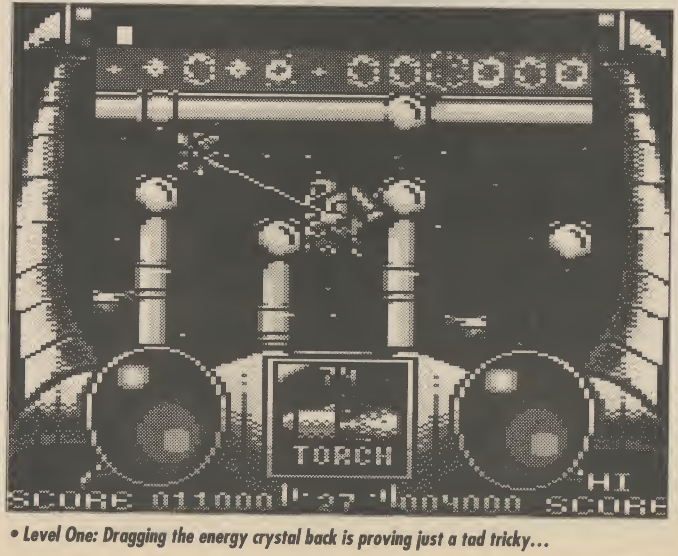
In Level Three you are equipped with a giant pair of robotic legs. Here you march along, destroying everything you meet before finally coming up against a huge, and extremely vicious, end-of-level guardian.

The curious thing about *Extreme* is that the three levels seem to become progressively simpler. Level One is really the biggie, involving all the exploring, most of the puzzling and certainly the bulk of the challenge, while the following two levels are a bit of an anticlimax. That's really the only thing that stops this undeniably good game being an excellent one.

The graphics are superb. They're sharp, very colourful and move smoothly. Sound too is good, with a weird 'fluttery' noise as you lose energy. Technically, *Extreme* really is top-notch. Only the strangely anticlimactic game structure lets it down.

CLASSIC STUFF!

Alan Scully (of Scull PD fame) has got hold of some fascinating files for use with Rainbird's Advanced Music System.



• *Level One: Dragging the energy crystal back is proving just a tad tricky...*

Consisting of well-known classical pieces, all transcribed on to the Amstrad by Rob Baxter, there are 10 'sides' in all. The sample disk sent to me by Alan also contains some very nicely presented background information in windowed form.

The disks available are as follows:

- Disk 45 – *Short Works* (compatible also with The Music System)
- Disks 46 & 47 – *Music I – Brandenburg Concertos 1-6*
- Disks 48 & 49 – *Music II – JS Bach and Various Composers*
- Disks 50 & 51 – *Music III – The Four Seasons*
- Disks 52 & 53 – *Music IV – Variations and Inventions*
- Disk 54 – *Music V – Ancient and Modern Pieces*

To play any of these you'll obviously need the Advanced Music System (which is definitely not available in public domain!).

Each disk number takes up one side of a 3-inch disk and costs £1. To order, send an SAE plus as many blank disks as are required and £1 for each disk side you want to order. The address is: Scull PD Library, Barra Wynd, Broomlands, Irvine KA11 1DB.

To receive a copy of Alan's free newsletter and catalogue, send an SAE and a blank disk – you'll also get a free adventure and demo for your trouble.

Rod Lawton

Amiga

WHAT A LEMMING!

Fans of Psygnosis' smash hit *Lemmings* will be pleased to learn that a follow up is already in the works. *Lemmings 2* will feature even more screens, plus loads of new features.

According to *Lemmings* programmer Dave Jones, the brains behind such Amiga gaming classics as *Menace* and *Blood Money*, work has already started on the follow up to what has already become DMA's most successful game yet. The game format will stay very much the same, but Dave intends to extend many of the game's functions to make *Lemmings 2* a far more interactive experience.

"The original was rather limited in the type of actions which could be assigned to the lemmings. In the new game, they will be able to do far more. For starters, there will be far more interaction between the lemmings and the background; they'll be able to pick up objects, carry them around and use them.' Dave added.

Lemmings 2 won't be finished for a couple of months yet, but we can probably expect to see it in time for a Christmas launch. In the meantime, Dave revealed that a *Lemmings* Screen Editor would be launched soon. With it, users will be able designer their own screens, therefore extending the appeal of the original still further.

FANGS FOR THE MEMORY

On the subject of games, Disney Software has announced that they've snatched up the rights to convert Steven Spielberg's spine-chilling horror extravaganza *Arachnophobia* to computer game format.

For those of you who didn't see the film, it's all about spiders. Not your common or garden spiders, mind you. No siree, *Arachnophobia*'s spiders are deadly little critters that enjoy nothing more than sinking their little fangs into just about any human they can find.

Although the film was only rated a PG, *Arachnophobia* is one of the scariest movies I have ever seen; I sat through *Demons* without batting an eyelid and even such horror classics as *Pet Cemetary* and *Beadle's About* had no effect on me, but *Arachnophobia* had me terrified! These days, I treat spiders with a lot more respect.

In the game, it's your job to save the human inhabitants of middle-american township Canaima from the clutches of their eight-legged enemy. This involves entering the buildings of Canaima and zapping any spiders that you encounter until your final confrontation with the big, bad, daddy spider himself.

A SPECTRUM FOR £3?

We may now have a wizzo 16-bit computer with arcade quality graphics and synth-like sound capabilities, but there's no escaping the fact that old Sir Clive's masterpiece of computer design, the aged Spectrum, can still run rings around the Amiga where playing a decent game is concerned (ah, those were the days...).

If you long for the days of rubber keyboards, 48K of memory and loading from tape, then you'll no doubt be overjoyed to learn that someone has finally released a Spectrum emulator for the Amiga. What's more it's PD, so it'll only set you back a mere £3!

Thanks to Gary Fenton, the brains behind Deeper Domain PD, I've been playing around with the emulator for a couple of weeks now and I'm pleased to report that it certainly seems to do the job. It's not quite the fastest of emulators, but colour can be switched off to speed things up a tad. As for the quality of emulation, it certainly seems to run a fair percentage of Spectrum programs – I don't actually have a great deal in the way of Speccy software, but Gary (who is a self-confessed Spectrum addict) assures me that it runs Spectrum games without a hitch.

I know what you're saying: "All my Speccy games are on tape!". Well, don't fret, because the author of this very clever piece of software has this little problem sussed too. Believe it or not, it actually allows you to load programs into your Amiga via tape!

Obviously the Amiga doesn't have a tape interface (thank god), so the Spectrum emulator uses the nearest thing – an Amiga audio digitiser! By simply connecting the output from your tape recorder to the input of any sampler that runs through the parallel port, the Spectrum emulator will read in programs from tape. Once a program is successfully loaded, you can then dump it onto disk for future use (although I'm not quite sure how legal this is!).

Those of you with loads of Spectrum software gathering dust can

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obtain a copy of the emulator by sending a cheque for £3 to Deeper Domain PD, 128 Portland Crescent, Stanmore, Middlesex, HA7 1NA. Alternatively, you can phone Gary on 081 204 3954.

Oh, and don't forget to tell Gary where you read about the emulator (who knows, he might even send me some more PD!).

THAT'S THE SPIRIT!

US-based Spirit Technologies has announced a RAM expansion card which is sure to appeal to anyone considering upgrading their current Amiga system to an Amiga 2000 (or higher) at some future date.

Spirit has badged its new XRAM card as a 'travelling' RAM expansion; it has been specifically designed to work on A500, 1000 and even the 2000! The board is housed in an external interfacing chassis which can be plugged directly into the 86-pin expansion bus of the A500 and A1000. When you come to upgrade, you can remove the card from the chassis and plug it directly into any one of the A2000's 100-pin expansion slots.

The card arrives complete with 2Mb of RAM as standard, but you can upgrade it to the full 8Mb in 2 Mb increments with 1Mb RAM chips. You can find out more by contacting Spirit directly by telephoning the company on 0101 801 485 4233.

SOUNDS DELIGHTFUL!

To complement its excellent *AudioMaster III* sampling software, Oxxi-Aegis has released its own dedicated 8-bit sampler. The Sound Master, which retails in the States for a whopping £180, is based on the very latest analog-to-digital frequency conversion technology which makes it one of the fastest Amiga sound digitisers available. Indeed, it has been specifically designed to support AudioMaster's maximum sampling rate of 56KHz.

The unit, which connects to the Amiga's parallel port, comes with a built-in microphone, dual audio inputs and two microphone inputs. To ensure the best results everytime, it also boasts a slider providing precise control over the input level of the audio signal. An 'overload' LED warns you when your input signal is too loud.

$180 dollars may sound like an awful lot to spend on a sampler, but the price does include the latest release of the *AudioMaster* software. Existing *AudioMaster III* owners can purchase the Sound Master hardware separately for just $99. Interested parties should contact Aegis' UK distributor, HB Marketing, on 0753 686000.

Jason Holborn

Archimedes

CHESS

Remember Micro Power, purveyor of such 8-bit classics as *BMX on the Moon*? Now it's branched out into 32-bit software with a decent version of *Chess* for the Arc.

The new game, *Chess 3D*, runs in a window and has a traditional 'top view' of the chess board on which you can make your moves. There's a running log of the moves on show (which is written in chess notation style – B1-C3, E7-E5 etc), an on-screen chess clock and a beautiful perspective view of the board. This is nicely shaded and very realistic; it is certainly much better than the existing *WimpChess*.

I'm certainly no chess expert so I'm hardly competent to judge its playing level (it beats me all too easily), but for aficionados it could be £20 well spent. There's a demo version for £3 if you'd prefer to try it out before you shell out too much hard cash.

Micro Power can be contacted on 0532 458800.

DTP IDEAS

Inspiration for Desktop Publishers...is not a new hybrid music publishing package, but the subtitle of a new book, *DTP Seeds*, by 4Mation's Mike Matson. It's perhaps the second most sensible book for the tyro desktop publisher to dip into: no printerspeak – picas and widows, kerning and pifonts – just a lot of page layout ideas in one £8.45 book.

The ideas cover everything from magazines and business cards to adverts and school forms, and while not every example is a winner (there are some real dogs), it is easy to pick something you like and follow that design for your own efforts.

It's not linked to any particular DTP package, nor is it unique to the Arc, because it doesn't give you much idea how to get the effects shown. And it could have been improved with some advice on the choice of typefaces, headlines and kerning.

The most sensible book remains Rob Pickering's *DTP at a Glance* (£9.95 from Bookmark Publishing, or free with *Impression II*), which de-mystifies that printerspeak comprehensively.

You can contact 4Mation on 0271 45566 while Bookmark Publishing is at the Old School, Greenfield, Bedford MK45 5DE.

SYRACUSE

The disk-based magazine *Syracuse*, alluded to in *Express* 120 turned up pretty much on time (always a good sign), and a brief chat with the editor made its intent a little clearer. It's in the manner of a fanzine, with little reviews, news snippets (inevitably a little dated), technical hints, and lots of passwords and cheats for a number of recent games. It even mentions *Express*, harking back to an item by Bertrum, my predecessor on this column.

There are also two disks full(ish) of PD, ranging from the frequently-seen *BullWinkle* and a bunch of other trivial games to a useful set of utilities called *SysUtil* and a nice fast desktop Mandelbrot and Julia set generator which has become my standard desktop timewaster.

The version of SpeedyROM (which speeds up most machines by running memory accesses to the ROMs much faster) unfortunately didn't work on my machine, though that may be because it has early RISC-OS 2.01 Eproms (shucks, it's a 540!)

Syracuse now costs £5 (not the £6 we said before – the price went down after *Express* 120 went to press) from Wythenee House, 10 Alastair Crescent, Prenton, Wirral L43 OUR or telephone 051-608 5469.

THEM OLD DRIVE STEP BLUES

Question for those with more that one floppy disk drive: did you know that you can set the stepping rate of your floppy disk drives separately? Nope, nor me.

If you've got an external disk drive, chances are that it works fine. But if you have problems, particularly when using older 5.25 inch drives and the PCEmulator (or even Minerva's PC Access or something similar), this just might cure it:

```
*Configure Step 6 1
```

It has the effect of making the drive stepping rate of drive one (the external drive) a bit slower without affecting the fast internal drive (drive zero).

```
*Configure Step 12 1
```

is slower still, and is particularly useful if your drive has a 40/80 track switch set to 40. I suspect the problems occur with old drives which step a little sluggishly, or it could be due to double stepping not having enough time to insert the second step between each normal speed step.

```
*Configure Step 3 0
```

sets just drive zero to its normal speed, and,

```
*Configure Step 3
```

(without a drive number)

sets both drives to the fast three milliseconds step rate.

```
*Status
```

shows the step rate of both drives separately.

Minerva is on 0392437756.

IMAGING THAT!

Following on from the trials of EPS file transfer a fortnight ago, some additional graphics help is at hand. Cambridge company Human Computer Interface has introduced Colour Screen to Mac, a rewrite and extension of an earlier Screen to Mac BBC graphics converter.

CSM takes any Archimedes sprite, in any mode, and translates it to a BBC screen dump file, an IBM PC-style .BMP file (the standard format for saving Windows 3 bitmaps), or a Macintosh PICT or MacPaintfile.

More importantly, it goes both ways, so Macgraphics can be imported onto an Arc. Any combination of translations is possible, so a Windows bitmap could be translated into a BBC screen dump file, if you really wanted to. It takes care of the conversion of colours and sizes, and can even cope with 256-colour and Teletext emulation modes on the Arc too.

The files can be transferred directly between Arc and Mac via a serial cable which Human Computer Interface can provide separately, or via 3.5 inch PC-format disks. Arcs have to use Minerva's *PCAccess*, Macs can use *Apple File Exchange*.

No word yet on the price for Colour Screen to Mac and I haven't tried it out for real yet, but if you need the software, then price won't be a problem. The important thing is that the transfers can be made, though you do need a Mac on which to run it. I'll be running a full review of the system in a forthcoming column.

HCI also does View to Mac (*View*, *Wordwise*, *PipeDream* and *First WordPlus* to *MacWrite* via a serial cable), and BBC to Mac which allows Macs to access an Econet via a serial link to a Beeb.

Human Computer Interface can be contacted on 0223 314934.

Ken Coumarin.

64

INTERESTING TIMES

What an exciting week it has been for Commodore. Meanwhile, the C64 story slugs on apace. According to Gallup, there were only 20 full-price games in the top 100 during March. It makes me think that more people buy more budget games more often. What about you?

Something else was evident from the March Gallup chart. Conspicuous by their absence were – lawk's a lordy – cartridges. Well, lummee, maybe there was one.

What's going on? Here's my best guess. The writing's on the wall. Think about it. A C64, plus disk drive suffers

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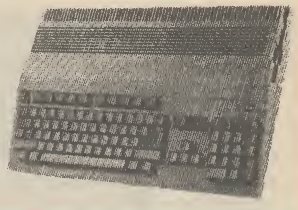

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• *C2N gets the push. On their own they might cost a cool £50 a time*

from comparison with a low-end Amiga and that golden veldt of games at £20 to £30 a time. If scenarios are roads, then that one leads us right into downtown Profit Margin City in Commodore capital state.

The victims of this utopia are the people who continue to buy Commodore 64s, no doubt drooling as they do over that beckoning keyboard – a feature obviously lacking in the nearest competitor (the C64GS). These people soon find that seven eighths of the games pool is inaccessible to them, yet their only way forward is to spend relatively huge amounts of money on cartridges or seek out what will soon be an elusive datacorder.

The only people who will buy such a machine are those who, for one good reason or another, haven't got a clue what they're buying. At least the same couldn't have been said of a C64GS purchaser.

It seems to me that most of the people who have a choice don't buy cartridges, not because they're bad, but because those people choose to enjoy a wider but cheaper pool of software. They aren't likely to change their minds about how and why they spend money on their micros just because the company they bought theirs from has stopped selling tape recorders with the machines. But what might affect their buying habits?

PEOPLE WHO MAKE TAPES

Come on down, US Gold, the last bastion of Reluctance About Cartridges. US Gold is a fine example of a company with a number of questions to ponder. Do they continue to produce tapes for a market that, after July, will start slowing down, and if they do, for how long should they? Do they raise the price of budget software or lower full-price margins in order to clean up? Remember, margins apply in every argument. In which case, do disk owners subsidise tape users or are they first to go? Does this mean there's any more mileage in considering cartridges?

PEOPLE WHO LEARN HOW THEIR COMPUTER WORKS

Enter the tiny minority. Well, they're about to get a bit tinier, aren't they? Type in a listing on your new micro. Does it work? No, so de-bug it. Does it work yet? No. Well, maybe but you don't understand what it's doing. Nice try, time for bed, don't forget to switch the computer off (and remember every character you typed in yesterday when you try again tomorrow).

Still, they're only a tiny minority to consider when your margin doesn't give you room to breath, eh. The hunt for that datacorder will keep them fit.

BOLDLY GOING

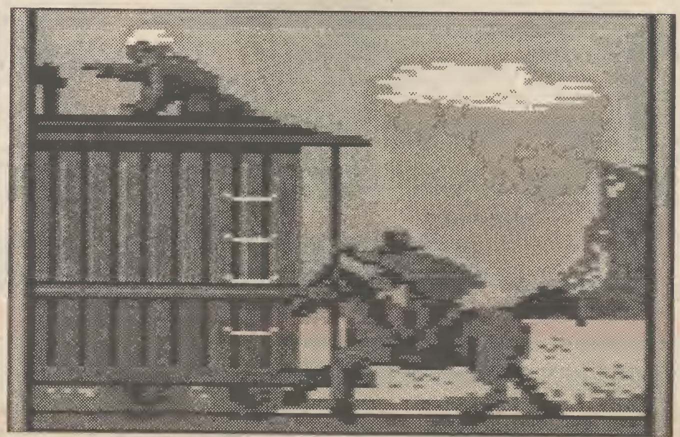
1982 was the year Commodore brought out the C64. As we often remind ourselves, it has sold 12 million units worldwide with estimates of up to two million in Britain.

You are not reading about the end of the 64. Well you are, but nothing's going to happen for a long time yet. The C2N has only had its death warrent signed; it's not been killed yet. There's still exciting territory to be covered. Many companies have plans for the C64 which are already carrying too much inertia to be stopped in their tracks.

The same is true of the user base. It's the only reason why the machine was ever successful in the first place.

When astronomers look into the furthest reaches of the Universe, they can tell that it's still expanding, that it's got a long way to go. The only difference an astronomer would spot in our little microcosm is that the universe has just begun to shrink. It's still big, but you can see an end to it.

Sean Masterson



• **Back to the Future III:** *just what kind of future is there for cassette-based games?*

Spectrum

CREATE YOUR OWN GAMES

It takes quite a lot to excite these days – the latest edition of the *Readers Digest Big Book of Guns and War* or Delia Smith are notable exceptions. However, one rare thing in the computing world that has caused a couple of tingles, the odd spasm and a fair few palpatations is the imminent arrival of a new product from that purveyor of cutting edge games for the Speccy, Incentive Software.

This wonderful company has long served our needs with fab games that have progressively pushed the Spectrum until it's beeped with discomfort. I surely need only mention *Driller*, *The Darkside*, *Total Eclipse* and *Castle Master* to have every self-respecting joystick waggling pleasure seeker go all wobbly at the knees.

The company's next piece of software could well top that lot, though and promises to be one of the most important Speccy releases of the year. You've probably read about the *3D Construction Kit* everywhere else already but I can't resist a quick drool over it here as well.

Put simply it's a package that lets you create your own Freescape 3D games in much the same way as Incentives' earlier utility *The Graphic Adventure Creator* let you construct your own adventure. With *3D Construction Kit* you can create, without planning permission or fear of castigation by big-eared monarchs, the kind of impressive-looking 3D structures that make up the landscape of the Freescape series. You then need to glue it all together by linking the locations together with exits and entrances and defining the character or perspective the player takes.

It sounds completely fantastic and will hopefully give birth to hordes of home made, stand-alone Freescape games for budget prices or available in the public domain. The cost is £24.99 but for a package of this apparent complexity and quality that doesn't seem very expensive at all.

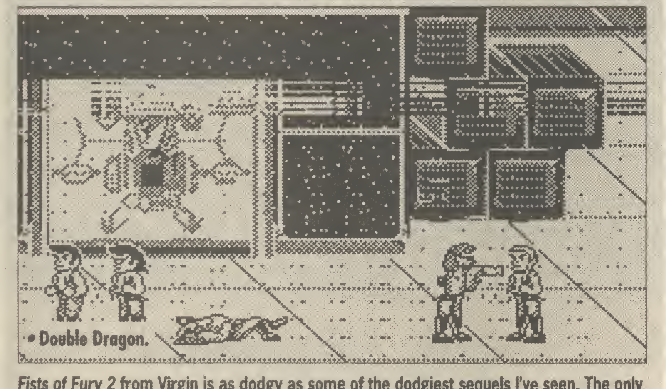
The release date is April so bait your breath, be ready with your wallets and prepare to create a 3D masterpiece on your Speccy!

CONTACT CONTACT

I mentioned Contact, the SAM user group, last week but suppress those accusations of bribery and corruption because as one of the best Coupé support teams around, it definitely deserves another plug.

Last week I raved about the group's bargain PD compilation and this time I'm simply going to help its second annual membership drive. Joining Contact for a year (April '91 to April '92) costs £5.50 for which you'll receive at least 25 *Update* newsletters. These are well designed sheets arriving at irregular intervals with up to the minute news, reviews and opinions. Also included is a bumper Christmas disk comprising the best public domain software of the year.

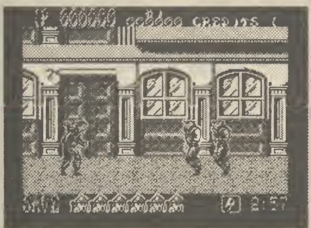
DODGY COMPILATION AHOY!



• Double Dragon.

Fists of Fury 2 from Virgin is as dodgy as some of the dodgiest sequels I've seen. The only thing that stands out as being even pretty good is the cute Sega game, *Dynamite Dux*, but the three other beat-'em-ups in the pack – *Shinobi*, *Ninja Warriors* and *Double Dragon II* – are, erm, not really very good at all.

Each one's an arcade conversion which suffered badly in transition from coin-op to computer and they fail to rise above the multitude of similar psychotic, balaclava-wearing ninja games that plague the Speccy. Invest in any of the Renegade series (available for budget prices) or System 3's *Last Ninja* (included on other compilations) for violent samurai sword welding fun for all the family before you even think about this one.



• Shinobi.

• Ninja Warriors.

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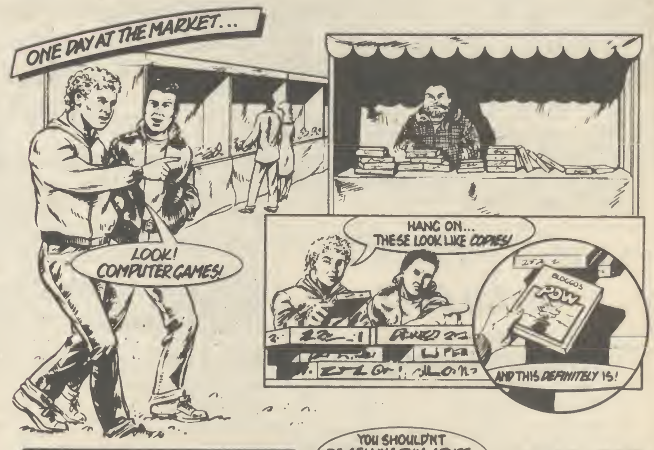

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EARTHSHAKER PASSWORDS

Steven Kemp has helped his fellow Spec chums out a few times in past columns with some life-saving tips and pokes, and he's arrived in the nick of time yet again.

The following 32 slightly surreal sounding sentences are the level passwords for *Earthshaker*. This great *Boulderdash* clone was recently given away on a *Your Sinclair* cover tape so there should be lots of people out there pleased to see them.

1) ROOM FOR IMPROVEMENT
2) THE BUBBLE BATH
3) THE GRAVITY CHAMBER
4) HEAD IN THE CLOUDS
5) HUSH TOED ICELAND
6) DIAMONDS OF MINE
7) THE TWO OF HEARTS
8) CENTRAL INCINERATOR
9) INTERNAL REACTOR INC
10) NUCLEAR ORE CAVERNS
11) GRAVITON SHELLS
12) THE OIL WELLS
13) WET HELL SOIL
14) THE GRAVLOCK CELL
15) HONEYCOMBS
16) HAIR BRAINED SURGERY
17) BURY DRAINAGE HIRERS
18) SPACEBASE WASTEPIPERS
19) THE SNARE
20) RUSE NO DOUBT
21) OUTER BOUNDS
22) SPRING LODED
23) ALARM CLOCK WORKS
24) FOG RISE WATERFALL
25) GREAT WELLS OF FIRE
26) CHINA CANAL
27) THE COMBINATION LOCK
28) YOUR SAFE WITH ME
29) YE FIT WARM HOUSE
30) THE KEEP
31) FOR GOODNESS SAKE
32) NO DEVIL LIVED ON

Thanks again Steve! And if that wasn't enough for one week another faithful old regular, Jon Rose (Editor of *ETM*) has just sent in a solitary Multiface poke for *Chase HQ II*: For infinite credits POKE 42803. Cheers Jon, you're a pal!

MIDI FOR SAM

I told you Contact was pretty up to date and according to its latest update the fabled SAM Coupé MIDI sequencer is nearing completion.

Promised features – which don't mean that much to me I'm afraid – include simultaneous record and playback, recording to a hundredth of a second, quantisation, variable lead in beat, filtered input of MIDI data and variable tempo 4 to 600 beats per minute (bpm) to name some of the more complicated sounding ones.

Contact the author Tim Humphries at his top secret research lab at 14 Swincoe Way, Linare Woods, Chesterfield S40 4UU. An SAE would doubtlessly be appreciated. Remember the sooner we see a SAM on Top of the Pops the better!

Robin Alway

ST

THE ST IN THE NINETIES

By the time you read this, Atari will have held a press conference and launch day. It's expected that the company will announce details of their new machines and re-pricing of the existing range. There's little doubt that this is a major event which will have a great bearing on the future of the ST.

The emphasis is changing from the popular, but down-trodden STFM to the slick STE. This is the computer which will see Atari through the nineties, therefore marketing decisions made now are probably the most important the company will make.

Atari has a computer which is potentially competition bruising. The major complaints about the STFM are the poor sound chip, the comparably low number of colours and the GEM desktop. All these elements have been dealt with in the STE. Full sample quality sound is available, a 4096 colour palette has been added and the machine sports the new TOS 1.6. With all the advantages of MIDI ports and a very fast 68000 chip, the STE is a superb machine.

The Mega STE will continue the tradition of offering a massively powerful computer in an attractive business orientated shell. However Atari needs to do much to redress the image of the STE. In this country it is games that spring to mind when the ST is mentioned, yet in Germany and America it is business that rules the market. I'm not suggesting for a moment that in this country we should forget about games, merely redress the balance.

It would be nice to envisage a day when Atari's image is the same as it was in the early 80s, for it is only then that the ST range will find the audience it deserves and we, the ST owners, will get the kind of software and hardware base enjoyed by much, much lesser machines.

AN EIGHT LEGGED FIEND

Spiders, you've gotta love 'em. Cute, furry little friends, aren't they? And they do wonders for keeping the fly population down.

Alright so they're not everyone's cup of instant tea (blurgh) but they certainly don't deserve the bashing they get in *Arachnophobia*, the Disney film.

Titus has acquired the computer games license to *Arachnophobia* and is planning an ST version for the beginning of May. As far as I can work out from the press release, the game is going to be a kind of arachnid shoot-'em-up. You take on the role of spider destroyer

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THIS IS JUST A SMALL SELECTION OF RIBBONS
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number one (the part played by John Goodman in the film, but let's hope the sprite doesn't look like him) and your job is to nip around spraying Toxi-max all over the little blighters.

This will mean investigating houses, schools, buildings, barns and cemeteries, flit-gun in hand, while helping out and any humans you encounter along the way.

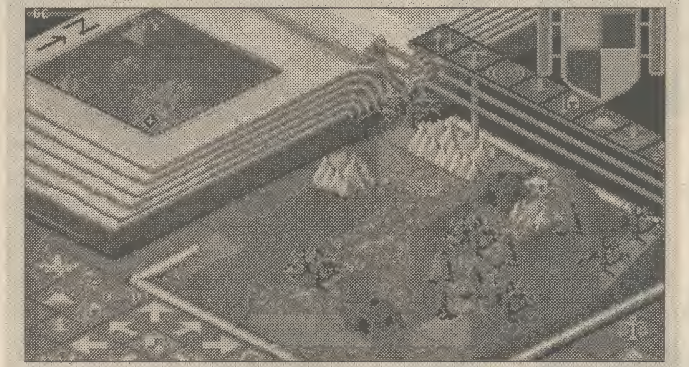
HIGH RES BACKDROP

If you fancy using the desktop picture backdrop, but don't like low resolution much, then try this. Convert your favourite picky to medium resolution using a utility such as PicSwitch. Obviously the new version will be in a pretty poor state as you now have only four colours with which to play. Retouch the image in (say) *Degas Elite*. It is possible to use shades, so it shouldn't take long to get the picture looking good again. Rename the file NEOPIC_M.PI2 and save it.

Before you quit *Degas*, call up the 'set colours' option and find out the four RGB values for your picture. Jot these down on a piece of paper and nip back into *Neodesk*. Plonk the picture file in the *Neodesk* folder and call up the control panel. Set the four colours to the RGB values you jotted down and then save the configuration file. Your picture should now load up again as it appeared in *Degas* when you boot up.

If you use *Neodesk* with *Protext* you'll find that it keeps crashing. The only way around this is to do without the control panel. Set the screen up the way you want from the control panel and then save configuration. Now delete the panel and you'll find that *Protext* runs perfectly.

A TALE OF TWO CITIES



Question: what's the best selling ST game ever? Answer: *Populous*. Did you guess right? Nope, ah, thought so. Well that particular storming game is being re-released. However this isn't a new version; it's being bundled with the also-rather-good-actually *Sim City*.

Infogrammes tells me that these two games in their full form will be released on April the 10 for £29.99. Surely a good time to blag a bargain?

If you have any other tips for *Neodesk*, or any other widely used programs, then drop me a line at the *Express* address.

THE DEMO TIMES

The public domain is full of examples of demos, programs written by amateur ST owners to show off the graphics and sound of the computer. Therefore it's a little surprising that there's been such a lack of writing on the subject. This is all set to change with the introduction of a fanzine purely about demos.

The *Demo Times* is being put together by a chap called Richard Davey and he needs your help. If you know a bit about demos and would like to try reviewing one then drop him a line. Choose a demo, it needn't be too recent as there's a lot of back catalogue to cover, then write to *Demo Times*, 10 Oak Drive, Portishead, Bristol, Avon, BS20 8Q5, or telephone 0272 843241.

Andy Hutchinson

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WHOLE WIRED WORLD

Apple announces launch date for System 7.0, Atari revamps CD-ROM again, CHOAS rules in Germany and much, much more from globetrotting Steve Gold.

TOWER MAC COMING SOON

Reports in from sunny California suggest that a 25MHz Tower Mac is on the horizon. The Tower Mac will be Apple's first floor-standing machine, as well as its first unit based around 68040 technology. According to hardware developers, it's a fast machine – using RISC technology to achieve a three to one speed advantage over a 25MHz 68030-based Mac.

Pricing on this wonder machine is good – under $10,000 for a unit with 4Mb of RAM and an 80Mb hard disk. That makes the unit as good as a NeXT workstation, not to mention the competition from IBM, HP and Sun, but at higher price point.

NeXT can manage the same features at around a third less, so it's difficult to see how Apple can make any real headway in the workstation market with the new Tower Mac.

MAY RELEASE FOR SYSTEM 7.0

Apple has confirmed to its developers that the System 7.0 operating system software will be launched on May 13, the opening day of the Apple Worldwide Developer's Conference in San Jose.

Pricing has not yet been fixed, but should not be much more than $75 in the US, which suggests a UK price tag of £39.95. This price includes documentation and 800K disks, which makes it good value.

Contrary to previous news reports (not in this column - phew!) the new operating system will not be available for download on-line as Apple wants its dealers to handle the package.

So what is it like? Fast, tight on code and with an interesting feature called the 'Balloon' help facility. This allows the user to customise help screens which can then be accessed as HyperCard stacks. Sounds good.

A full rundown on System's 7.0's feature list will appear in this column in a couple of weeks.

ATARI CD REVITALISED – AGAIN

I hear that Atari is readying a revamped version of its CD-ROM disk player for launch this coming May. The machine will be shown at Comdex Spring in Atlanta and is pitched at the Atari ST, STE and TT user base.

The original Chinon CD-ROM drive has been replaced by a newer, more up to date one. Did someone say Sony?

HELLO TOSH - GOTTA NEW PORTABLE?

The T2000SX and the T1200XE, the two new laptops from Toshiba US, are the first from the company to feature nickel-hydride battery technology.

The T2000SX is based on a 16MHz 80386SX microprocessor and costs $4,999 for a 20Mb hard drive version, and $5,499 for a 40Mb configuration. The 6.9 pound unit comes with 1Mb of RAM – expandable to 9Mb on board – and a paper-white sidelit LCD screen. Other features DOS 4.01 and a high-density 3.5-inch floppy drive.

The nickel hydride battery, which provides three hours of power, recharges in one and a half hours. The T1200XE, meanwhile, is already shipping in limited quantities in the US, with volume shipments expected in April. The unit is driven by an 80C286 microprocessor running at 12MHz and features 1Mb of RAM, expandable to 5Mb internally. Other features include a fast-access 40Mb hard disk.

FORMAT PROGRAM TIME BOMB

Ron Kovacs' Z-Net on-line newsletter reports that users of a public domain program called *Dualformat* for the Atari ST could be in for a shock.

Apparently the package – which formats ST disks in two drives at once – ceases to create unique serial numbers on the disks after a certain number of transactions. This means that if a user replaces a disk in their ST with a new one which has the same serial number, the ST will treat the disk as the old one, writing the directory information onto the disk surface and almost certainly trashing the disk completely.

Z-Net says that there is no cure for the program's problems, so advises users not to bother using the package for the time being.

THE COMPLETE AMIGA MAIL ORDER COMPANY

Safe Harbor, a specialist division of the MDH Group, has announced it is now fully operational in the mail order supply of all things Amiga, including books and add-ons as well as the usual range of hardware and software.

Backing up the extended hours help and order lines is a multi-line BBS which allows callers to leave queries on the Amiga. The high-speed BBS has an on-line catalogue that can be downloaded by callers.

Contact: Safe Harbour, West 255 North, 499 Grandview Blvd 204, Waukesha, WI 53188, United States. Tel: 0101-414-548-8125 (voice) 0101-414-548-8140 (BBS to 2400bps) 0101-414-548-8141 (BBS to 9600bps).

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Underwater Kinetics is the unlikely-sounding name of a US company producing an exciting range of moulded ABS/polycarbonate cases for laptops at sensible prices.

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Contact: Underwater Kinetics, 1020 Linda Vista Drive, San Marcos, CA 92069, United States. Tel: 0101-619-744-7560 Fax: 0101-619-744-7320.

CUSTOM BUILT BATTERY WATCH

Travelling Software is set to launch a new version of its popular terminate and stay resident 'battery watch' software in the next few weeks.

This latest version, called Battery Watch Pro and priced $50, can be customised for use with virtually any portable PC, provided it runs DOS. According to officials with the US company, this new version sacrifices some of the features of the machine-specific edition, but allows the package to work with any portable.

CHAOS COMPUTER AGM

The seventh annual meeting of the Chaos Computer Club took place in West Germany recently with the usual rolling out of new system-hacks and wheezes guaranteed to set any security manager's hair on end.

Chaos members announced that plans to set up an informal on-line network in East Germany have been scrapped now that the two Germanies have been united.

Centerpiece to this year's AGM was a demonstration designed to illustrate how easy it is to forge Eurocheque cards which banks in Europe claim is completely impossible. However, members of Chaos successfully copied a West German journalist's Eurocheque card, plugged it into an ATM and promptly proceeded to print out details of the journalist's chequebook account. ■

AMIGA MULTI-LINE FIDONET

Xenomiga Technology in Toronto, Canada, is developing a package called Xenolink, which it reckons is set to be the ultimate BBS software for the Amiga.

Although the package is not out until the summer, the company is allowing beta testers to help it develop the package for its final release.

So far, the specifications look pretty amazing, as does the company's multi-port, high-speed BBS, which, unsurprisingly, runs on Xenolink. As well as being multi-line, Xenolink is also Fidonet compatible, featuring full echomail and netmail support

The package also comes with a main menu compiler, so that when the package and its menus have been customised by the sysop, the software can be compiled to make it execute as quickly and smoothly as possible.

Xenomiga says that it is aware of other Fidonet-compatible packages for the Amiga, but claims its version is the best, as it is fully integrated. Other packages, claims Xenomiga, use non-Amiga program code which makes for less flexible and efficient program modules.

Contact: Xenomiga Technology, 1132 Bay Street, Suite 1101, Toronto, Ontario, M5S 2Z4, Canada. Tel: 0101-416-92106638 (all speeds to V32).

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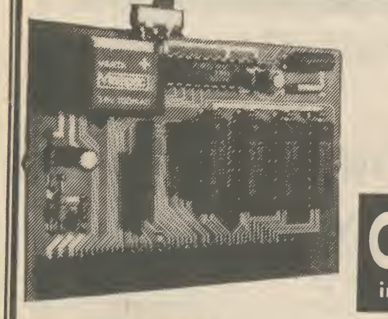

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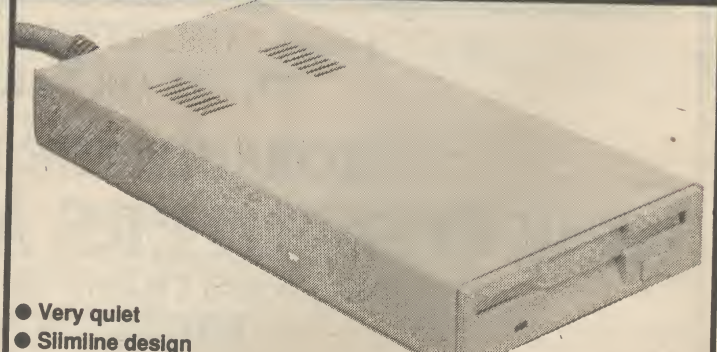

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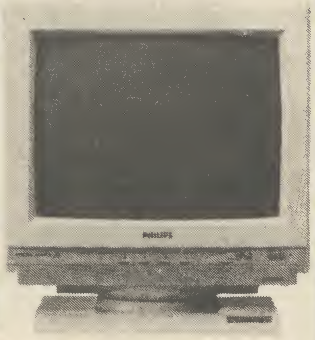

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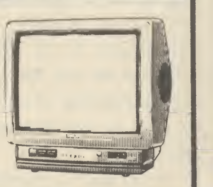

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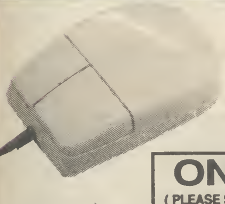

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N.B. Due to the large variance in design of the Atari ST, there is a small minority of boards in existence which may require a little soldering.

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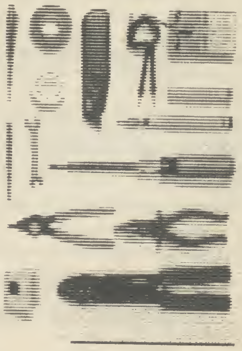


Ever fancied watching some telly on your monitor while you're waiting for that document to print? Keith Pomfret spends less than £50, and puts his feet up to watch...

WELCOME
TO
TWIN PEAKS
Population 51200

There used to be several black boxes on the market that allowed you to feed a TV tuner into your computer monitor. The Amstrad CPC was well catered for with at least four devices of varying quality. TV tuners seem to be out of fashion and at the last check, the only one still available was Amstrad's own MP3.

This is fine if you've a colour CPC, but if you haven't you needn't be without your favourite sitcoms. Half an hour with a soldering iron, or a hammer to granny's piggy bank could have the MP3 or any of the other Amstrad CPC tuners pushing pictures into your Amiga, Archimedes, or ST monitor.

WHAT'S IT ALL ABOUT

The MP3 TV tuner is essentially the parts of a TV set that pick up the signal from the aerial and filter out the various TV programs. In a normal TV, this would be converted to the red green and blue elements and sent to the screen. In the MP3 it is converted into the colour elements but then fed to a socket on the front of the MP3. This is connected to the Amstrad CPC colour monitor which takes over the job of the screen in the TV.The MP3 has a speaker in it so the TV sound comes directly from the tuner.

The MP3 takes its power from the stabilised 12v output on the Amstrad minitor that more usually powers the disk drive in the 6128.

HOW

This leaves us with all the elements needed to make a workable TV out of an RGB monitor but with a couple of problems.

SCART TO CPC

Pin 20 Video	Pin 4 Sync
Pin 17 Ground	Pin 5 Gnd
Pin 15 Red	Pin 1 Red
Pin 11 Green	Pin 2 Green
Pin 7 Blue	Pin 3 Blue

The first problem that needs to be solved is how to get the signal from the MP3 into a monitor that doesn't have the same connections as the Amstrad. In real terms, this means any monitor that isn't an Amstrad CTM644 series beast.

Thankfully, the pin connections for the video output (and therefore the MP3 output) are documented in the CPC manual.

The CPC video connector is a 6 pin DIN plug. This is different in the CPC plus series. If you're trying to make the cable yourself and you find that the video connector schematic has more than six pins, you're trying to use the CPC plus manual. Don't do this as the pin configuration is completely different and it will only lead to confusion. The pin out for the CPC video socket is elsewhere on this page for reference.

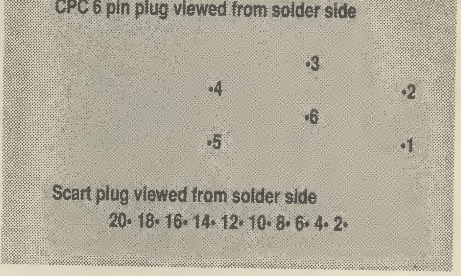
The next thing to do is make a lead that corresponds to the output of the MP3 and the input of your monitor.

For simplicity and because a goodly amount of monitors have them, we connected our MP3 to a monitor with a SCART connector. The cable we used was one metre long and with the scart plug on one end and MP3 6 pin DIN on the other was the right length to comfortably reach from the RGB socket on the front of the MP3 to the SCART socket on the rear of the monitor.

Other RGB monitors can be interfaced in this way but it's sensible to check that the monitors are compatible. Contact the manufacturer before you weld your MP3 to a monitor that you haven't the data sheets for.

We planned to use the monitor on an Amiga as an occasional TV, but ideally didn't want to be swapping leads around. A simple answer came in a SCART splitter available from Trilogic.

PIN CONNECTIONS


CPC 6 pin plug viewed from solder side

Scart plug viewed from solder side

SPLITTING SIGNALS

The SCART splitter allowed us to connect the normal video output from Amiga/ST/Archimedes and the TV tuner output to a switchable box. The net result was an elegant way to get from *Blue Peter* to Zap the aliens at the flick of a switch. The Trilogic splitter cost £14.99 including VAT and carriage and although we could have made a splitter, it seemed more appropriate to buy it as the cost wasn't over the top.

The final problem that we encountered was one of power. The MP3 has no power and takes a regulated 12v supply from the disk drive supply of the CTM monitor. Simple, it seemed. Take a 12v plug in and go supply and the problem's solved. That isn't necessarily so. For the total and complete wirehead, it's possible to invalidate the warranty and dig into the computer's power supply for the necessary volts. That's a money saver, but not one that should be taken on by anyone who doesn't know what they're doing. In other words, if you blow up your kit because you're stupid, don't come whining to us.

If you aren't a wirehead then it's a trip to Tandy or a phone call to Maplin. You need a regulated 12v DC power supply and either place can supply one. Alternatively, any electronic hobbyist shop will provide the parts, cable and know-how to complete the job. ■

Next Week: How to kill Laura Palmer without having a TV series made about you...

WHAT YOU NEED

AMSTRAD MP3 TV TUNER: The only place left on this planet that seems to be selling this is Trade-In-Post. The MP3 costs £29.95 and Trade In Post is on 0952 462135

CABLE: To make the cable you'll need a male 6 pin DIN plug, a piece of 5 core (or more) cable at least a metre long and a male Scart (Peritel) plug.

To weld it all together, you'll need some fine multi-core solder, a soldering iron and a pair of steady hands. If your RGB monitor isn't Scart, you'll need the appropriate plug/connector but be sure to check compatibility first.

We got a cable made up for us for £5.50 plus 50p carriage by Simpson Electronics. Paul Simpson also offered to supply the bits in their un made up form for £3.50 plus carriage. Simpson Electronics is on 0332 760353.

The elegant splitter box for the computer and monitor came from Trilogic and cost £14.99 including VAT and carriage. Trilogic is on 0274 678062.

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TECH TIPS

Ever wondered how harmful a laser is? Want to know the easy way to scan images? Or even how to make drawing the pools easier? Send your stories and queries to Keith Pomfret, Tech Tips , New Computer Express, 30 Monmouth Street, Bath BA1 2BW.

■ HELP! Leads United

I'm not a computer whizz-kid, I'm no kid any longer and I don't like writing letters either – I do so every day at work. This is the problem: I have just purchased an Amiga, can one of your technowiz kids design an I/F cable for me to allow my 'old' 64 X MPS801 printers or 1520 printer plotter to be realigned to the A500? Or is this not possible in any way whatsoever?

My printing needs are minimal, but I could do with a printer. I'm on very low pay – I only work part time. I have just started work again after 'quite a few years UE' so money is tight. If it can be done an I/F cable is going to cost less, surely, than the cheapest (£180) Star printer?

PS It's a really great mag, I have bought every copy since its birth. Keep it up – I love it.

PPS It took me three-and-a-half years to save up UE spare money to buy the Amiga. I do not want to wait another one-and-a-half years for a printer.

Alex-Ander, Lincolnshire

If you want a bespoke lead for the Amiga to a printer, the chap that you need to talk to is Paul Simpson of Simpson Electronics. He makes a speciality of the Amiga and its ports and if he doesn't have the requisite lead to hand will certainly assist you in getting the right parts and making one.

Where did you get the idea that printers cost hundreds of pounds? A 10 minute stint on the telephone ran Epson compatible Olivetti DM100S printers to ground for £49.50 plus £8 for VAT and carriage from Crown in Lancashire. You can contact them on 0704 895815.

■ HELP! Fat Freddy's cat

Can you tell me if it harms a cat if you point a laser at it? The kids next door make our cat run round the garden chasing a laser beam and occasionally they shine the beam straight at it. Also, why is a laser called a laser?

Ann Trevors, Cornwall

That depends on the power and intensity of the laser. A semiconductor laser of only a few milliwatts wouldn't exactly fry Tiddles although it's never a good idea to stare at a coherent light source (laser) no matter how weak it is.

If the kids manage to connect directly to the national grid or the local 25Kv railway line and run a 1Kw laser you may have problems.

The output from a 1Kw pulse laser would turn you, Tiddles and most of your street into black charred stuff.

Laser is in fact an acronym that describes what it does. It stands for: Light Amplification by the Stimulated Emission of Radiation.

■ TIP! Scanman

If you want to scan the occasional image into your PC but don't want to go to the trouble of buying a dedicated scanner, you can manage without if you have a Fax card in your PC.

Simply go to the nearest bureau or shop where there's a Fax machine that can handle 64 grey scales (such as the Canon) and send yourself a Fax for the cost of the local phone call. Your fax card receives it and translates it into a stored image.

It's not much good if you need to do a lot of scanning, but if you do the occasional image, it's a cheap way.

Ashton James, Bradford on Avon

The above wasn't a letter, but a verbal tip from Ashton James, *Express*'s photographer, who shows a remarkable grasp of things digital and how to get the most out of PCs. When he bounded into the office, there was a corner left in this week's Tech Tips and he nicely filled it.

■ HELP! Mac/Amiga affair

I am one of those lucky people whose school has lots of Macintoshes and allows their pupils to use them, but like most of the population cannot afford one for home use, and so use my own computer – an Amiga A5000.

Since we are not allowed to take the Macs home (surprise) I have to do some work on my Amiga (mainly word processing) for school. I am currently documenting my A-Level Computer Science project using the Macs, but don't have enough time to type it in during school, so there are some documents on my Amiga. I would like to know if it is possible to send files from the Amiga to a Macintosh (the Macs in school are SE30's). I have *Access!* for my Amiga, and the school has *Microsoft Works* which, according to the manual, can receive other files from other computers using the comms program.

I read the Manual to see if I could find anything useful, but all it said was that computer to computer communication was possible, but didn't give anything away about pin connections. I then thought my best bet was looking through the Mac Owners Guide, and it did give the pin connections for the comms port, but I am not sure what pins I should connect on the Amiga to the Mac (especially TXD+, TXD-, RXD+ and RXD-). I have drawn a sketch of the port on the back of this letter as appeared in the Guide to show what I mean. Could you also please tell when I could get my hands on a mini-8 connector to plug into the Mac, as (not very surprisingly enough) neither Maplins or RS seem to stock them.

David Ewing, Northern Ireland

You can do the transfer that you require in one of two ways. If your Macs and your Amiga are near telephone lines and you have access to modems at both ends, it is possible to use the comms software to send and receive files. You'll need a fairly comms literate person at both ends of the phone link.

Alternatively, you can get the two

■ HELP! Telly Addict

Some time ago Amstrad was advertising a 6128 set up that involved a clock radio, desk, modulator and computer with colour monitor. My son has set hid heart on one of these after seeing one round at his friend's house.

I enquired at our computer shop and although they have still some of the old 'grey' 6128s, they were unable to source the radio or modulator which they think is an MP3.

Dixons provided a clock radio and a computer desk came from the local DIY superstore (via dad and his saw and nails). We tried Amstrad and the Amstrad user groups but no-one seems to do this modulator. A computer club member said that he thought a couple of other firms may do a TV modulator, but he wasn't sure who.

Peter Price, Matlock Bath, Derbyshire

There is light at the end of the tunnel or at least the cathode ray tube. This was one of several letters that we've had recently about utilising the monitor as a TV.

A couple of years ago, RAM, Screenvision and Amstrad were all producing modulators to turn the 6128 monitor into a TV but it seems to have gone out of fashion. a chance comment from a Tech Tips letter put me in touch with John Thackeray at the Trade In Post in darkest Shropshire (or Salop to its friends).

John assures me that he's got at least a zillion MP3 TV tuners and for good measure added that he'd got MP1s, MP2s and 12 game cassette packs for the 464. The MP1 and MP2 are TV modulators that allow you to use a 464 and 6128 through a TV. The MP2 is needed for the 6128 as it has an extra 12v line for the disk drive.

John's prices are a very reasonable £29.99 for the MP3, £19.99 for the MP2 and £14.99 for the MP1. Add £3.20 to these and the modulating beastie will be on its way to you.

If you've a 464 but no games to play on it, the Soft 999 12 pack of games is sitting on the shelf in the trading post waiting for £2 +£1.50 for post and packing.

John has sent an MP3 down to *Express* and when it gets here, we've dissected it to find out which other monitors it will drive. ST and Amiga owners keep your fingers crossed and turn to Circuit City for the answers.

- Meanwhile, Paul Simpson has leapt on the bandwagon and will be offering the necessary cables and connectors to run your SCART monitor from the Amstrad MP3 tuner. Ring him on 0332 760353 for prices.

machines together and use a simple null modem cable with your comms software. Try either RSD connections on 0992 584205 or Simpson Electronics on 0332 760353

■ HELP! True Love

After reading some of the solutions to the recent enquiry on how to generate football pools numbers, I wondered if you or any of your readers could come up with a program to help me.

I organise and run in my spare time an agency dedicated to helping people find true love and companionship. It isn't a dating agency, like Dateline, but more of a service to lonely people. Over 14 years it has blossomed from an idea that introduced a couple of friends who were in bereavement.to a rewarding hobby that takes up each evening and most of my weekends.

My lady wife helps, but after a stroke, she is not as fit as she was and I am now faced with the choice of computerise or give up. My two sons are at college and I have access to their PC and an Amiga. I'm not fully old fashioned and can use word processor and database etc.

The thing that I need most though is a simple program that takes data and sorts it for compatibility. Using the current card index system it can take up to three hours to find a match.

I'm sure that the computer could do it quicker and more efficiently, but I don't know how to write the program.

In my questionaire there are 50 questions. Each of these can be answered by a number between 1 and 10. The selection procedure first tries for a perfect match and then if that fails looks for a close match (within 2) or a vague match (within 4). I also allow up to three incompatibilities so the program would need to be able to pick the three most incompatible matches and disregard them.

I understand from a friend that someone once achieved this sort of program with a word processor but I'm not so sure that I believe that. Please help me to spread a little happiness

Name witheld by request

The last request for programming help brought such a good response that I'll throw this one open again. Send your solutions to Tech Tips Marital Bliss.

Incidentally, I too had heard the tale about the dating program written on a word processor. It was a long time ago and the author was one Alex Aird. Unfortunately Alex seems to have availed himself of effective camouflage and no-one remembers if he left a copy of it. It wasn't actually programmed in a word processor but in *Promerge*, the mail merger that comes with *Protext*. Now if anyone has a nice collection of *Promerge* utilities, I'd be ever so interested in seeing them.

Meanwhile, all you Amiga and PC programmers get your noses to the grindstone and make springtime happier for the lonely hearts.

POOLS DRAW

When Trevor Cobbe asked for a simple program to sort out his pools numbers, I threw the challenge open to all comers. We received over 60 solutions, but I've only got enough space to run a few but more letters this week ask for programming assistance – over to you.

■ In at the deep end

In Tech Tips of *Express* 118, Trevor Cobbe enquires about sorting a set of numbers into ascending numerical order. The simplest way to do this is to use a bubble sort. This isn't necessarily the fastest method, but it's the simplest and will suffice for this application. The following program should do the trick.

```
100 flag=0
110 FOR l=1 TO 10
120 IF a(l)>a(l+1) THEN
temp=a(l+1):a(l+1)=a(l):a(l)=temp:
flag=1
130 NEXT l
140 IF flag=1 THEN 100
150 for l=1 to 11: PRINT
a(l);:NEXT:rem Print sorted array
```

This assumes that the array A has been dimensioned with 11 subscripts, and that the (unsorted) numbers are in this array. To create the array, the following routine can be tagged onto the start of the above program:

```
10 dim (11)
20 for l=1 to 10
30 a(l)=int(rnd*57)+1
40 next l
```

This routine generates random numbers in the range of 1 to 58 and sticks them in the array. The random numbers are generated in line 30, using the RND statement.

On my machine (CPC6128), this returns a random number between 0 and 1. This must be multiplied out to give the correct range and then rounded using the INT function. It must have 1 added to it to prevent it from returning to zero. The RND function may work in a different way on some machines.The sort routine works by running through the list of numbers and swapping any two adjacent numbers which are in the wrong order. This continues until no numbers are swapped, when the array will be in order.

Finally, if anyone would like any help with BASIC programming on any machine (or anything else if they are CPC owners), then they can write to me including an SAE and I'll try to help them out.

Peter Harrison, Leicester

■ Football crazy

Trevor Cobbe's pools-draw prediction and sorting problem can be solved with the following Amiga Basic program, which avoids the need for an explicit sorting phase.

The program maintains an array of game results, keeping therein a record of those games which are deemed to be draws. When sufficient unique draws have been made, the index of each drawn result is printed.

```
n.games = 58: draws. wanted = 11
DIM game. results (n.games)
RANDOMIZE TIMER
a.draw = 1
WHILE draws.made < draws.wanted
game = INT (n.games * RND) + 1
IF game.results (game) <> a.draw
then game.results (game) = a.draw
draws.made = draws.made + 1
END IF
WEND
FOR i = 1 TO n.games
IF game.results (i) = a.draw THEN
PRINT i
END IF
NEXT
```

The program could be made more rigorous by starting it with:

```
DEFSNG a-z
OPTION BASE 1
```

But these additions do not affect the results.

Richard Weeks, Suffolk

■ Eight draws

Trevor Cobbe of Leicester may find the attached listing and comments helpful. If he uses a Spectrum either with cassette or DISCIPLE/+D controlled 3.5-inch disks, he will gladly record the program on his cassette or disk if he sends it to me and includes return postage.

Notes: Lines 1160 to 1240 select 11 numbers pseudo randomly and load them into the array a (11).

The bubblesort takes place in lines 1280 to 1310. Variable "b" is used to hold the first number selected on the first pass through the sort loop, being changed for the second number if the second number is larger, and so on.

Variable C is reset each time to 1 but whenever an exchange is made it is set to 0. This is detected by the "IF c=0 THEN" conditional print statement which also returns to the bubblesort loop start.

If you look at the print out either to screen or to printer if you have one, the first line is the originally selected 11 numbers, and each further line the result of one pass of the sort routine. The last line is the originally selected 11 numbers in ascending order. To get another print out, just enter RUN again.

You can see why it is called bubblesort by noticing the right to left movement of low numbers on each pass.

Mike Smith - 11 February 1991.

```
41 26  8 50 28 21 15 10  7 58 16
26  8 41 28 21 15 10  7 50 16 58
8 26 28 21 15 10  7 41 16 50 58
8 26 21 15 10  7 28 16 41 50 58
8 21 15 10  7 26 16 28 41 50 58
8 15 10  7 21 16 26 28 41 50 58
8 10  7 15 16 21 26 28 41 50 58
8  7 10 15 16 21 26 28 41 50 58
7  8 10 15 16 21 26 28 41 50 58
```

```
1000 REM
1010 REM NCE/118 Tech Tips
1020 REM Select 11 nos. from 58
1030 REM & ascending
bubblesort1040 REM
1050 REM Leave out REMs if
1060 REM you don't need them and
1070 REM leave out the LPRINTs
1080 REM if you have no printer
1090 REM Ignore saving routine
1100 REM after line 8999
1110 REM
1120 REM @ 1991 Mike Smith
1130 REM
1140 LET print=2000: REM
subroutine label
1150 DIM a (11): REM set up array
1160 FOR i=1 TO 11: REM place 11
(pseudo) random numbers in array
1170 LET random=1180: REM label
1180 LET b=1+INT (58*RND): REM
generate a (pseudo) random number
in range 1-58
1190 FOR j=1 TO i=1: REM compare
number with numbers already in
array
1200 IF b=a (j) THEN GO TO random:
REM because it is a duplicate
1210 NEXT j
1220 LET a(i)=b
1230 Go SUB print
1240 NEXT i
1250 PRINT "": LPRINT ""
1260 LET sortloop=1270: REM label
1270 LET c=i: REM sortloop1280 FOR
i=2 TO 11
1290 LET b=a (i-1)1300 IF b>a(i)
THEN LET a(i-1)=a(i): LET a(i) =b:
LET c1310 NEXT i
1320 If c=0 THEN FOR i=1 TO 11: GO
SUB print: NEXT i: PRINT "":
LPRINT "": GO TO sortloop1330
LPRINT ""
1999 STOP
2000 REM
2120 REM printing subroutine
2020 REM
2030 PRINT TAB 3*i-1-LEN STR$ a(i)
; a(i);
    2040 LPRINT AB 30+3*i-LEN STR$
a(i) ; a(i):
2050 RETURN
9000
9010 REM save program to disc
9020
9030 PRINT #1; "check disk present
and press a key": PAUSE 0: INPUT
""
9040 LET a$="ncett .129": FOR i-1
TO 2: SAVE *"m";1;a$: VERIFY
*"m";1;a$
9050 IF i-1 THEN PRINT #1; "Insert
backup disk and press a key":
PAUSE 0
9060 INPUT '': NEXT i: CAT 1!:
STOP
```

PS Bet that you were called "CHIPS" at school.

Mike Smith, Colchester

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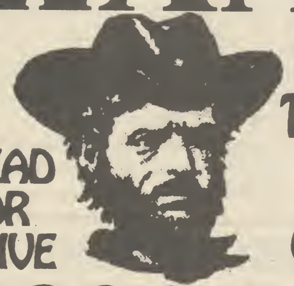

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AMIGA 500 Action Replay MKII, will pay £30 and P&P. Phone Southampton (0703) 434788. I have the codes for Lemmings, if stuck phone.

ATARI ST Internals Book, good money waiting. Write to M Tillett, 30 Prospect Road, Oulton Broad, Lowestoft, Suffolk NR32 3PT or Tel (0502) 513923 urgently needed.

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AMSTRAD CPC6128 and green monitor, mouse, art package, 53 games, tape and disk, mouse mat/holder, manuals and magazines £165. Tel:0253 41555 after 6pm.

LASER Genius Assembler for Spectrum £6 + post call (03985) 438 or write: 2 Town Mead, Oakford, Devon, EX16 9EW.

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AMIGA games for sale form £1 - £25! All original boxed, as new. Tel: (0860) 444594 or 021-459 7576. Also printer cable £4 (spare).

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AMIGA A500 2nd floppy drive, 512k expansion modulator, joystick, (boxed) £400. Tel: Steve (0427) 616995.

COMMODORE PC10 'XT' compatible dual 5.25" floppy disk drive 1084S video colour monitor, enhanced keyboard Mannesman Tally printer, wordprocessor, database, games, instructional manuals. Contact Christopher 081-997 2361, 6 months old, £850.

ATARI ST internals by Abacus Number two. Mint condition £7. Phone Paul between 1pm and 4pm only please, due to shift work 0752 603952.

DRAGON Computer, Company address guides, only £2.00 including P & P. Send cheques to Peter Hawes, 9 Strangford Road, Whitstable, Kent CT5 2EP.

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FORTRAN: Atari ST. Profortran 77. £75 O.N.O. Telephone Cambridge 0223 242250.

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PSION ORGANISER XP and CM for sale, £70 and £40 each. XP boxed, as new, 16K datapack and formatter available. Phone (0793) 782748 for detials, ask for Adam.

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GRAPHICS TABLET (digitising) CRP A4 size suitalbe for Atari ST, link software as well as manual, £250 o.n.o. Must sell! 071-589 5111 ext. 4112.

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ATARI ST games Corporation, Cadaver, Immortal Onslaught, Warhead, Dungeon Master, CSB etc £8 each but will swap for other games - Powermonger, F19, Stealth Fighter or Falcon Mission disks.

ARCHIMEDES A3000 one week old, all manuals, etc. spare mouse and software. Unwanted gift, £500 no offers. Tel: (0772) 732762 anytime.

386/SX IBM CLONE. 40M HD 3.5 FDD, SVGA mono monitor, mini tower case, 3 months old. House move forces sale, £1250. Tel: (0843) 226331 evenings. Can arrange delivery.

AMIGA SOFTWARE, Thunderblade £6, Hostages £6, Obliterator £6, No Excuses £6, Hellbent £6, Int Karate+ £6, Speedball £6, Dragon Ninja £6, Test Drive £6 + many others. Telephone 0422 379065 after 7pm.

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OSCILLOSCOPE 15MHz, dual trace, leads/accessories, as new, £150. Also Spectrum 48K, data recorder, speech unit, zX printer, (needs attention), Interface, Software, Books, £50. Telephone 0245 413385. (Ask for Grant).

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DEM 335 Syntax Terror
DEM 262 An Cool's STE Demo
DEM 266 Automation Intro Comp
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DEM 308 Preditor Demo
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OPENING TIME

Welcome to yet another week in the technology age. Talk about cutting edge, last week I saw a laptop computer which could not only diagnose its own faults, it could also diagnose yours.

The logic behind this machine was not so much fuzzy, as straightforwardly foggy. As an example of its cutting edgeness, when asked to cut an area of text in a business letter, it refused, saying that it quite liked the style and wouldn't it be a lot easier to cut the bit further down which wasn't anywhere near as good?

When it was informed that it should do what it had been told it simply rebooted itself, sat on the desk with a development version of Windows 5 (written by itself) on screen and hummed. When the marketing guy attempted to boot it afresh, the machine sent 400 volts up his arm from the mouse port. I was impressed even when the machine commented that my suit must have made a hell of a hole in the carpet.

Following this meeting, I and several other journalists were whizzed off to Bruges by helicopter in order to savour the delights of a new Belgium software house called LeEnnuiSoft. This company has just developed a new database cum comms package cum DTP system which not only organises your information, but also tarts it up and sends it automatically. The only problem with the Beta test version is that it will only send the information to a small village in Andalusia.

Still, time marches on so let's get back to business. This week we bring you a special Centrefold Clever Class on getting to grips with spreadsheets. Not the easiest concept in the world with which to get to grips but we think that Lisa has, once again, done the business.

FACTS ALOT

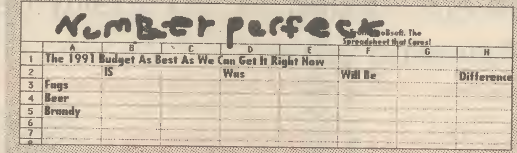
Radix is the technical term which relates to the base number in any system. The radix for decimal is 10. The radix for hexadecimal is 16.

In *Sim Earth* it is quite possible to evolve robots.

Mozart and Haydn both wrote music for computers

SPREADSHEET CLEVER CLASS WITH LISA SCUZZY

As we all know, spreadsheets are one of the most important aspects of computing. The spreadsheet not only allowed for business users to create whole new forward plans, profit and loss variable systems and financial modelling, it also allowed for a boom in creative accounting and expenses fiddling on a massive scale. People have become addicted to forming formulae, cell structuring and a whole host of other spreadsheet related experiences. This class will hopefully give you a firm grounding in the basics and will therefore enable you to strive further forward.



NumBer perfeck from KnoBsoft. The Spreadsheet that Cares!

	A	B	C	D	E	F	G	H
1	The 1991 Budget As Best As We Can Get It Right Now							
2		IS		Was		Will Be		Difference
3	Fags							
4	Beer							
5	Brandy							
6								
7								

1) The first thing to do is to purchase your spreadsheet. A recommended package is NumBerPerfect from KnoBsoft Enterprises. Priced at £4.99 plus £1,200 for the manual and key disk. The bundle has everything you could want, and is programmed in BASIC so that, with a little patience, you can personalise the system.

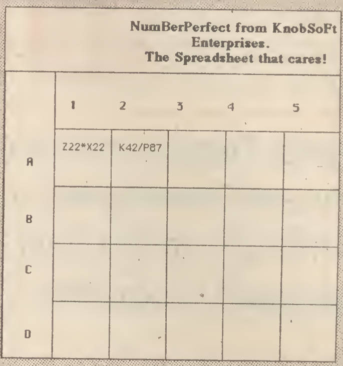
Now, collect all those old bits and pieces of paper upon which you have written the facts and figures which make up your business or even home budget. A handy tip for spreadsheet pre-planning is to look down the side of that old armchair. You might not find any notes but you might find some loose change will help in fluidising your financial situation.

LIST OF RELEVANT SPREADSHEET DETAILS BY N. La Mont Esq.

Dear JM,
This is what we've got so far. Sorry it's so late but I'm still not sure about this VAT stuff or GNP and that business. Can we ask Nigel?
Yours Norman

1) Beer	UP
2) Fags	UP
3) Brandy	Leave it where it is
4) Cigars	Don't touch 'em!
5) Roll-your own	UP
6) Petrol	Wait and see what happens out east
7) Cinema tickets	UP
8) Ascot tickets	Leave 'em where they are
9) Knighthoods	Whoops
10) VAT	Erm? 2% or 40% I really don't know
11) All the rest of the stuff	Ask Nigel, he's got the spreadsheet

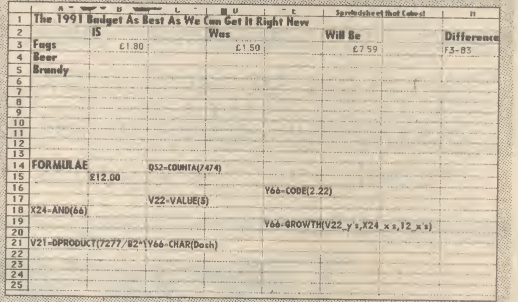
2) Before setting off with your working sheet it is a good idea to create a list of the things which you will be including. A handy tip here is to get some sprog to do it for you, pay him or her a pittance and then put the figure down on the spreadsheet as expenses. See, already the sheet has saved you time, and made you a little bit of money on the side. The list you see here comes from one of my many clients.



NumBerPerfect from KnobSoFt Enterprises.
The Spreadsheet that cares!

	1	2	3	4	5
A	Z22*X22	K42/P87			
B					
C					
D					

3) Now we see the beginnings of a working spreadsheet. Not much to look at now but just wait and see. By the way, the two formulae you can see have no purpose, but they look good. A handy tip here is to spend more time on the way a sheet actually looks than bothering to fiddle about with the figures. Use of colour graphics, bar charts and pie charts is always impressive to the punter in the streets. Remember, knowledge might be power but looks can kill!



Spreadsheet that Cares!

	A	B	C	D	E	F	G	H
1	The 1991 Budget As Best As We Can Get It Right New							
2		IS		Was		Will Be		Difference
3	Fags	£1.80		£1.50		£7 59		F3-B3
4	Beer							
5	Brandy							
6								
7								
8								
9								
10								
11								
12								
13								
14	FORMULAE		Q52=COUNTA(7474)					
15		£12.00						
16					Y66=CODE(2.22)			
17			V22=VALUE(5)					
18	X24=AND(66)							
19					Y66=GROWTH(V22_y's,X24_x's,12_x's)			
20								
21	V21=DPRODUCT(7277/82*\Y66=CHAR(Dosh)							
22								
23								
24								
25								

4) Once everything has been tidied up, it's time to go ahead with the formulae. These little devils are the very meat and gravy, and two veg and pudding and cheese, coffee, brandy and port of the spreadsheet world. Add them in as often as you can and in as many places on the sheet as possible. Most people don't have the faintest idea what these things are or what they do, which can work very well in your favour. A good tip here is to make sure you have a qualified accountant with you who can do the proper working out with a calculator.

Job done! Now you are ready to make your presentation. Be sure to have as many printouts as you possibly can, most of them in colour. If your spreadsheet has the option of porting figures from the sheet into graphics - then do this. It is most impressive and the prettier these pictures are the more people will "Ummmm" and "Ahhh".

A final tip. Make certain never to actually involve any of your own money when using a spreadsheet. The bloody things are so complicated you never know what might happen!

HOT TOP TIPS FOR THE SERIOUS USER

An occasional series of handy computer tips:

- To speed up your typing and avoid typographical mistakes, glue down the keys which you rarely use.
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SCHEME UP AND LEARN

Look at a language and you're completely lost? Scheme, a tutorial dialect, could help you get over the learning curve. Mary Branscombe guides you through its features.

Lots of Irritating Spurious Parentheses? Although this is rarely used as a serious definition, it can correspond to many casual users' initial impressions of a language. Scheme, the tutorial dialect we are looking at, should offer enough features to get you beyond this stage quite quickly!

As well as lists, Scheme provides numbers, Booleans, characters, strings, symbols, vectors and the Lambda expressions we saw last week. Simple procedures are provided for input and output and we have been using DisplayList to display more than one object.

The Boolean values for 'true' and 'false' are #t and #f. In many implementations of Scheme, the empty list and #f are the same, so that either (), for the empty list, or #f, for false will be returned when a call fails, while #t is displayed when calls succeed. Three logical operations can be applied to Boolean objects, 'and', 'or' and 'not', and the predicate 'boolean?' allows you to check whether an object is a Boolean object.

There are two tests for the equivalence of any two objects; like other calls, they return #t for true and #f for false. The first, 'eq', is true if Scheme cannot find any difference between two objects, even down to where they are stored in memory. The other test, 'equal?', counts two objects as equal if they evaluate to the same result. Numbers can be integer, real or complex and a number of predicates with self-explanatory functions are provided (number?, zero?, positive?, negative?, odd?, even?, remainder, exp, expt, sqrt, log, round, truncate).

Characters represent printed characters, in the form #\character and return the ASCII value for the character given; #\x returns 120, the ASCII value for x. Strings are sequences of letters or other printed characters, given in double quotes. "This is a string".

To give a value to any other symbol, 'define' is used to introduce a variable and give it a value. This can be changed through 'set!'. Responses to the program are in italics.

```
(define CarrollCharacter1 "the White Rabbit")
; CarrollCharacter1
(set! FirstCharacterInBook CarrollCharacter1)
; FirstCharacterInBook
FirstCharacterInBook
;  "the White Rabbit"
```

The first Lewis Carroll character is the White Rabbit; the value of this is set to also be the value of the first character in the book. In each case, the interpreter tells that it now knows about the symbol we have given. Lists are the most important feature in Lisp and they are given simply as lists of objects enclosed in brackets. To let Lisp know that this structure is a list of arguments, not a function with arguments, we must quote the list:

```
"(WhiteRabbit MadHatter RedQueen)
;(WhiteRabbit MadHatter RedQueen)
```

Here the interpreter tells us it can see the list, but if we leave the quote out, it tries to apply some procedure WhiteRabbit to the arguments MadHatter and RedQueen, working in from the end of the list:

```
(WhiteRabbit MadHatter RedQueen)
; ERROR undefined variable RedQueen
```

Many procedures are for working with lists: 'member' checks if an object is in a list, 'length' returns the length of the list. Lists can be combined with 'append' and 'cons' adds one element to a list, while 'list' will bind any number of single elements into one list. Each memory cell is divided into two registers; the address register stores an element of the list and the decrement register holds a pointer that tells you where the rest of the list is stored. The "contents of address register" are the head of the list, the first element in the list and are accessed by 'car'. The "contents of decrement register" give you the tail of the list and the abbreviation is 'cdr'. This can be "stacked up", eg 'cadr' is equivalent to car followed by cdr. To check if a list is empty, use 'null?'.

```
(car '(WhiteRabbit MadHatter RedQueen))
; WhiteRabbit
(null? (WhiteRabbit MadHatter RedQueen))
; #f
(car   (cdr   (cdr   '(WhiteRabbit   MadHatter
RedQueen))))
; RedQueen
(caddr '(WhiteRabbit MadHatter RedQueen))
; RedQueen
```

One important use of lists is to store pairs of objects, in associations lists, in the form (key value). The 'assoc' procedure will return a value given the appropriate key:

```
(assoc 'RedQueen '((WhiteRabbit  late)
                   (MadHatter mad)
                   (RedQueen regal)))
; (RedQueen regal)
```

The recursive structure of all these lists should seem familiar, and the functions that process them are also recursive. Don't forget to give some termination condition, so the recursion eventually stops. As Scheme will attempt to convert recursion (internally) into iteration, there is no storage space penalty for using recursion.

Association lists can be used for one-dimensional array, if you choose your keys carefully, but the vector structure is more suitable. Vectors contain a number of items, referred to by index numbers; the contents of the vectors can be changed, as the following shows:

```
(define Characters (make-vector 5))
; # ( () () () () () )
(vector-set! Characters 0 'dormouse)
; # ( dormouse () () () () )
vector-length Characters)
; 5
vector-ref Characters 0
; dormouse
vector-ref Characters 1
; ()
```

Unlike Prolog, Scheme gives you control structures for sequencing, selection and repetition; 'cond', 'if' and 'case'. The cond procedure accepts any number of condition-action pairs; the conditions will be evaluated and as soon as one condition is found to be true, the associated action is executed. The cond statement stops as soon as one condition is found to be true. An optional 'else' clause can be added to the cond, for use when all the conditions fail. A cond statement can describe any sort of selection you want, but the 'if' and 'case' statements can be used for convenience. The if procedure expects three expressions; a condition, a then action and an else branch, for use if the condition fails:

```
(define    favouriteCharacters    '(WhiteRabbit
MadHatter RedQueen))
; favouriteCharacters
(if    (equal?    (car    favouriteCharacters)
'WhiteRabbit)
    (display "the White Rabbit appears first")
    (display "looking for the first character"))
; "the White Rabbit appears first #t
```

If there are a number of conditions, a case statement similar to that found in Pascal is available. An expression is evaluated and the result of this is used as an index to pick out a result from the list of ((condition) result) pairs. An else result should be provided, if all the conditions can fail. If you want to use iteration, a 'do' loop is available. It takes a control variable, an initial value and a way to increment the value, tests the termination condition and evaluates the body of the loop if the termination condition has not been reached:

```
   (do((variable value increment))
                 (termination condition)
         loop body)
```

If you just want to apply a command to all the elements of a list the 'for-each' command will do this:

```
(for-each display favouriteCharacters);
;(WhiteRabbit MadHatter RedQueen ())
```

With all procedures in Scheme, whether built in to the system or written in a program, we can change the name simply by defining a new procedure with the required name, referring to the old name. If you find car and cdr somewhat confusing, you can write:

```
(define head car)
; head
(define tail cdr)
; tail
(head (tail '(WhiteRabbit MadHatter RedQueen)))
; MadHatter
```

The considerations for writing good programs in Lisp and Scheme are much the same as in any other language, but much emphasis has been placed on 'style'. The better the style of a program, the more portable it would be. Modern implementations are more efficient, but there are some important guidelines.

- Procedure definitions should be short and simple; a function should perform one clearly defined task.
- Variables, constants and other identifiers should be given names which tell you what function they perform.
- Using recursion will not make your programs slower or need more memory, so you can use recursion wherever you feel it would make the program easier.

And finally...the best way to deal with those irritating parentheses. Use an intelligent syntax editor that will help and point out any missing brackets. And make sure you know why 'brackets are being used to group and separate different parts of expressions. ■

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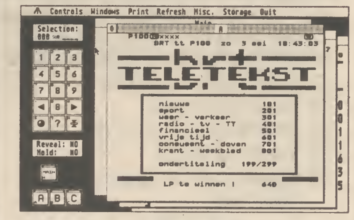
THE PD COLUMN

Make Ceefax more exciting, use mono programs on your colour ST monitor and do the Bartman for little more than the price of a disk. Adam Waring tells you how.

Ceefax • ST (mono monitor) • Sphinx Software • UTI 74

Teletext is the electronic viewdata system with which virtually all modern television sets are equipped. It's next to useless because it's so fiddly to use, and you sit around for ages waiting for the pages you want to pop up. Most people only resort to it when they want to find out what's on the box but are too lazy to look in the *Radio Times*.

But now you can use your ST to control the system. Not only does this make the it much more of a pleasure to use but it also means you can now do a lot more than just look at the pages; extra features allow you to save pages onto disk and manipulate them in whatever ways you choose.



```
P100 xxxx
     BRT tt P100   zo  3 mei   18:43:03
              TELETEKST

     nieuws                 101
     sport                  201
     weer - verkeer         301
     radio - tv - TT        401
     financieel             501
     vrije tijd             601
     consument - doven      701
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     ondertiteling      199/299

     LP te winnen !         640
```

• *Control Teletext from your ST.*

Extensive documentation is included in the form of text files. Before you can even think of using the program, you're going to need some kind of electronic gubbins to receive those pictures and convert them into a form the computer can understand. For this you need a Teletext decoder, and instructions are given for modifying the one from inside your telly or building one from scratch.

Once you've made the contraption and linked it to your ST's expansion port, you're ready to rock 'n' roll. In use, you can view up to four pages at a time in various display windows, while a panel to the left of the screen acts as the equivalent of the remote control you would normally use with Teletext. You use it by clicking on the buttons with the mouse and pointer, or via the keyboard.

Functions are selected via the pull-down menus, or a limited subset of them using the remote control panel.

Mono Emulator • ST • Sphinx Software • UTI 74

"Bah! If only I could use the *Ceefax* program on my ST. The only problem is that I have a colour monitor. It's just not fair!"

Fear not! Now you can run mono programs on your colour monitor with this natty little utility. It comes on the same disk as the above-mentioned program, and will allow you to run many many PD programs that have been written with a mono monitor in mind, as well as mono-only commercial offerings.

The ST has three screen resolutions: low, medium and high. Low offers chunky pixels, a resolution of 320x200, but gives you 16 colours. In medium resolution you have a 640x200 display, but just the four colours. High resolution is

THE BARTMAN

Amiga • Virus free PD • 1211/1212/1213

Hard Music IV
Do The
BartMan
TO RUN YOU NEED AT LEAST 2 DRIVES
INSERT DISK 2 IN 2ND DRIVE DISK 3
IN 3RD DRIVE OR SWAP WITH DISK 1
WHEN IT HAS FINISHED ACCESSING
SEE README FILE FOR MORE INFO

• *SingalongaBart.*

C'mon everybody, do the Bartman.

We've all heard the flat-topped yellow head on Radio One and bopped along to the character from a program that no-one has ever seen (unless you've been to the States recently or have been foolish enough to buy a Sky satellite dish).

Now you can listen to the number one hit without switching on your radio.

"How so?" I hear you ask. "I haven't rushed out to buy my copy of the single yet."

You can listen to it on your Amiga, that's how! The whole record has been digitised with excellent results. The only problem is that it takes three disks to hold the thing. Still, there's a nice picture of Bart as the music plays.

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the mono mode. The display is in black and white but you've a crisp 640x400 screen with which to play.

It benefits little from being shown on colour display as it doesn't use them. So Atari developed two monitors – one colour and one monochrome.

It would have been nice if colour users were able to access all three modes on a single monitor. But no. Atari, in its infinite wisdom, made the different modes incompatible. You can only run the colour programs on a colour monitor and the mono monitor is needed to run mono programs. Stupid, eh?

Anyway, *Mono Emulator* gets round this problem by fooling the ST into thinking it is attached to a monochrome monitor. The program needs to run from the AUTO folder, so it should be placed in that folder on any of the disks you have that contain mono programs. On boot-up you're asked at what speed you'd like the ST to run. A compromise has to be made; the faster the ST runs, the less often the screen is updated, and consequentially the jerkier everything looks. Speed can range from 100 per cent with a very slow update, to 56 per cent of normal speed, but with a smooth as silk display. The default is at 75 per cent with a reasonably adequate update.

In use – perfect! The display is very sharp and worked with all the programs I tried it with. The source code used to create the program is included on the disk, so the curious can see exactly how it's done. ■

WHERE TO GO FOR THAT ESSENTIAL PD

VIRUS FREE PD

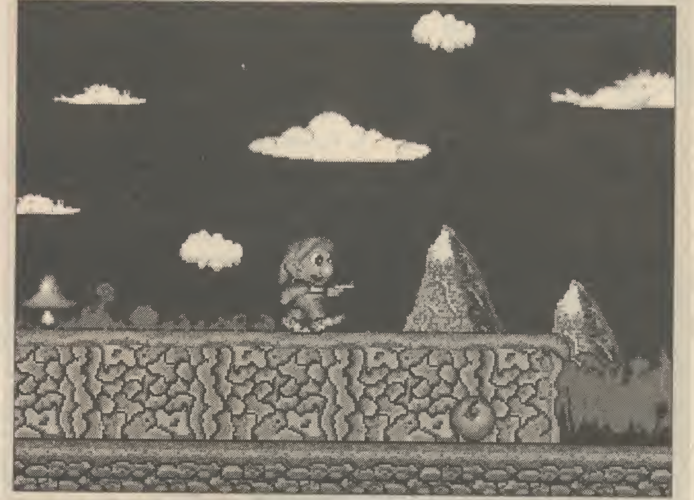
23 Elborough Road, Moredon, Swindon, Wilts SN2 2LS. No, no. Not a free virus with every disk ordered! What they mean is that every disk you order is guaranteed free of viruses. (At least I think that's what they mean.) Anyway, disks from these people won't contaminate your Amiga with things that go 'bump' in the disk drive.

SPHINX SOFTWARE

Erw Fynydd, Carmel, Llanelli SA14 7SG. Sphinx has loads of stuff for your ST. Most disks in the library are designed for single-sided machines, but you may request a 'double up', with two programs on the same disk. Prices are £1.75 for a normal single- or double-sided disk, and £2.00 for double sided 'double up'. If you supply the disk the price plummets to just 75p.

WACKO IN WONDERLAND

Amiga • Virus Free PD • 1209



• Fruit picking in Wonderland is not as idyllic as it might sound...or as dull.

Wacko in Wonderland must be one of the cutest Amiga games ever. It's a simple platform affair in which Wacko must make his way from one end of each scrolling level to the other.

The little chap is somewhat reminiscent of a gnome. An added task while going from A to B is to collect the fruit that's lying around. Each bit of fruit is worth 1p and Wacko can spend it in a shop that appears every now and again.

As usual, somebody has to spoil things. It would have been nice if Wacko could have gone about his business without being hassled. But no. All manner of nasty creatures want to kill him, which they do by body contact.

Luckily Wacko has a gun with which he can shoot these spoil-sports. And he can buy extra weapons in the shop too. Serves 'em right, I say.

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PORTABLE POWER
POWER IN A BRICK

Keith Pomfret put on his hod-carrier's boots to look at The Brick, the latest concept in portable power computing.

Laptop computers may be the rage for their portability but there are many users who would like the convenience of a desktop model at two locations with the portability of a laptop.

US company Ergo took into account that most portable computers aren't used during a journey and came up with the Brick, an imposing little polished and sprayed aluminium box that sits snugly in a briefcase and offers 386 power computing at a fraction over eight pounds in weight. The Brick is being distributed in the UK by Polaron Engineering. The system unit takes up around half the space in a standard executive case although there are custom carry cases available.

The brick is supplied as a single system unit with two power supplies, two keyboards, a Logitech mouse, MS DOS 4.01, Windows 3 and disk cache software to optimise the speed at which applications can run. The unit has a 44Mb hard disk as standard but this can be expanded to 110Mb or 212Mb .

Disk access times are 28 milliseconds for the smaller 44Mb unit, 25 milliseconds for the 110Mb drive and 18 milliseconds for the 212Mb option.

With a power supply, monitor and keyboard at the two locations, it's simply a case of carrying the system unit between them. A monitor isn't supplied as standard and to utilise the Brick's potential a couple are necessary. To add to the Brick's versatility, a docking module is planned. This is essentially a box that sits on the desk and connects to the Brick with a 180 pin connector and duplicates all of the ports on the rear of the Brick. It also has a slot for a 16-bit 3/4 sized expansion card. The idea of the docking module is that all of the connections that are normally made to the brick can be permanently attached to the docking module and the Brick can be connected by simply placing it on the module.

BIG ON MEMORY

In the contoured box is a 20MHz 386SX PC that can run up to 8Mb of RAM and the review machine had the maximum 212Mb hard disk drive. On board was the maximum 8Mb RAM, but the basic machine comes with a respectable 2Mb. It communicates with the world through a 1.44Mb 3.5-inch floppy and has ports for VGA and EGA display, two 9-pin serial ports, a 25-pin parallel port, keyboard and power connections. There's a US style telephone connector for the internal 2400 Baud Hayes modem, but as yet the modem hasn't got the magic BABT approval. This means that although it's a perfectly usable comms machine, it cannot be legally attached to the Telecom network.

Optional external extras are a 5.25-inch floppy drive and a 120Mb tape streamer.

Standard video resolution is extended VGA supporting a resolution of 1024 x 768 with a suitable monitor. There is 1Mb of video RAM on board and at the highest video resolution there are 16 displayable colours. The operating system can be MS-DOS, OS/2 or Unix although MS-DOS is standard.

Within such a small machine the possibilities for internal expansion are limited, but nestling between the motherboard and the floppy disk drive there is sufficient room for a 16-bit AT style half card. The review machine was fitted with a network card in this slot and had been in use as a file server as well as a desk machine. Machines in the US have been supplied with no floppy drive, utilising the space for a second expansion slot.

QUIET RUNNER

Manufacturer Ergo claims that the Brick is one of the quietest running machines and that this is due to a design that utilises the aluminium case of the Brick as a heat sink. A heat dissipation bag absorbs heat from the motherboard and passes this on to the perforated aluminium case. The cooling fan is thermostatically controlled and only cuts in when the combined abilities of the cooling bag and case can't remove the heat quickly enough. In use this means that the system unit gets warm, but not unpleasantly so.

The brick can be used vertically or horizontally and performed equally well in either aspect. The manual suggested that it shouldn't be used as a monitor stand though as the monitor sitting on the case could stop the convection effect and cause overheating. This is a shame as the Brick is about the same size as the average monitor plinth. Perhaps a small fitting to allow the monitor to sit on top while keeping a sufficient gap for heat dissipation would be a good idea.

Assembling the brick at both locations is simple if you use the docking module, a matter of dropping it gently on to the module's connector. If you want to use it as is, with no docking module though, you have to connect each cable individually. The connectors are all of sound quality but regular connection and disconnection could cause extra wear on them. One horrendous minus point with the connectors is that the power connector that takes power from the mains unit has the same connector as the EGA monitor and the serial ports. The manual does mention that it is dangerous to the Brick to plug this into the wrong socket, but a totally different connector would be better.

The keyboard has all of the features of a full AT keyboard but laid out in a way to take less space. The tactile response of the keys was pleasing, but to someone used to typing on the enhanced 102 key AT style layout, it felt strange.

Other slight niggles were a keymap that meant the backslash (\) was under the hash key instead of under the back slash key and a monitor selection incompatibility hassle in software that meant unless the monitors at both ends conformed to the same standard, a lengthy re-run through the set up procedure was needed to persuade Windows or any other resolution dependant software to run.

INSTALLED SOFTWARE

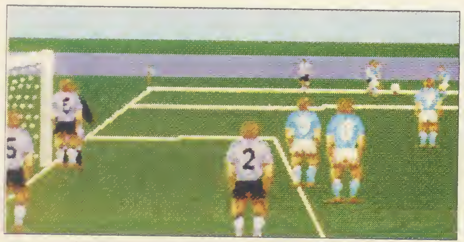
The Brick was supplied with software already installed which is normally the way. Software ordered at the same time as the Brick will be configured and installed before the machine is consigned, taking away one of the arduous tasks normally involved in buying a new machine. Polaron's philosophy is that it should offer a system that you switch on and use rather than having to go through several mundane tasks of installation first.

The Brick is a good idea and there is an obvious market for it. There are one or two small niggles that need addressing, but the Brick does all that it claims and sets out to do. The 20MHz 386SX chip at its heart proved more than poky enough to run CAD software and with caching and fast disk access it was definitely a powerful tool.

Most important to the end user wanting to increase productivity will be that the Brick is physically the same machine as the office machine, so to continue work elsewhere, there's no disk swapping as the work and software are as you left them.

The Brick costs £2758.85 including VAT for a system with a 44Mb hard drive and 2Mb of RAM. Other configurations, price on application.

The Ergo Brick is available from UK distributors, Polaron Engineering, on 0923 240272. ■



• "But ref! All I said was "I play 3D Soccer." I never said anything about how well! You can't send me off!"

GAMES WEEK

Neil Jackson gives you the low-down on the latest new games, playing tips, cheats and news.

There are some peculiar rumblings coming from the software industry this month, I can tell you. Who would have believed that those loveable, utterly nice people, the Famous Five, are to appear in their very own computer game?

Enid Blyton's greatest creations star in ***The Famous Five On A Treasure Island***, an interactive graphic adventure which closely follows the plot of the author's splendid children's novels. The game, although based on the kiddies' books, is designed to be taxing even for much older children. Golly! Your Amiga or ST can hardly wait until the end of March when Enigma Variations plan to release this extravaganza for £24.99 and £19.99 respectively. Phew!

Even more weird and chilling is Virgin's planned strategy game, ***Floor 13***. Set in London's docklands, the game puts you at the heart of a top secret organisation which is responsible for limiting "political damage" to the Government in office. The group is so secret, even the Prime Minister is unsure of its existence.

In the name of national security, you must use any means at your disposal to prevent gossip of sordid nastiness about the people in power. This includes the use of assassination, interrogation, infiltration and espionage, all of which must be achieved without revealing the existence of your organisation.

True to the nature of the game, Virgin is being tight-lipped about the release date for ***Floor 13***, but it should be available for PC, Amiga and ST sometime later this year.

Football, football, football. Aren't you sick of it? Just how many lousy computer game footie spin-offs have there been? Where will it end? *Gordon Banks' Football Lemon-Sucking Halftime Simulator*, perhaps? Who knows? However, Simulmondo reckons it has the footie game to end all footie games, with its next release ***I Play 3D Soccer***.

It features a realistic viewpoint, which places you 'on the pitch' in a specific position, rather than looking down from above. You can become involved with all the football trickery that you'd expect – such as attacking, passing and shooting – all in genuine first-person perspective. There's a two-player mode which uses a split-screen method and several replay modes, which can show the action from the viewpoint of any player on the pitch. Marketed in Europe by Software Inspirations, ***I Play 3D Soccer*** is due out on the pitch in the middle of March for PC, ST and Amiga for the transfer fee of £24.99. Will it be a three dimensional hat-trick or an own goal? Wait and see.

News reaches Games Week from Psygnosis that the company is planning the imminent release of the ***Killing Game Show*** for the Atari ST. This multi-directional scrolling platform game has been available on the Amiga for a while now, receiving plentiful acclaim. Fight your way to the top of the 'Pit of Death', while the deadly liquid fills up the chasms below. All this to entertain a few thousand blood-hungry television viewers who are glued to the ***Killing Game Show*** each week – perhaps that's why there's a detailed replay feature which enables you to watch your demise a thousand times over in full colour. ■

TOP 10 SIXTEEN-BIT GAMES

THIS WEEK	LAST WEEK	CHART WEEK	TITLE	PUBLISHER	MACHINE
1	2	2	*Turrican 2*	Anco	ST AG
2	1	4	*Lemmings*	Psygnosis	AG
3	2	13	*Speedball 2*	Mirrorsoft	ST AG
4	5	27	*F-19 Stealth Fighter*	Microprose	ST AG PC
5	NE	1	*SWIV*	Storm	ST AG
6	6	8	*Final Whistle*	Anco	AG
7	10	3	*Fists of Fury 2*	Virgin	ST AG
8	NE	1	*UMS II*	Rainbird	AG
9	16	14	*Teenage Mutant Hero Turtles*	Mirrorsoft	ST AG PC
10	8	27	*Kick Off 2*	Anco	ST AG PC

ST = Atari ST AG = Commodore Amiga PC = IBM PC or compatible OT = Other
Chart compiled by Gallup. © European Leisure Software Publishers Association.

BATTLE MASTER

Mirrorsoft ST and Amiga

Onward orcish soldiers

Here are a few tips for those of you struggling with the first four levels of this fantasy strategy game, courtesy of the game's creators, TDC.

SCENE ONE: DORIN'S DELVE

Level one consists of a treasure chest and an entrance to level two. Walk along the cliff face to reach the chest and grit your teeth while you make your way past an arrow. Walk up the dark brown earth track to the cliff face, and you wake up the sentries. Dodge them by walking left around the bushes. When you get to the cliff face just walk up and down – doing this will open the cave entrance.

Once you're on level two, you will find a corridor with stairs at the end. Walk down the centre of the corridor as there are lots of pits on either side. At the end of the corridor go up the stairs to level three. Here you find a small room with a locked door. There's a lever in the wall on the left hand side which opens it. Walk up and down in front of the mirror to find out what the secret code is.

SCENE TWO: DULHAM

Just a few huts here, plus a few people and a pit trap at the end of the road in the middle of the village. Set this off and your rear and huddle formations suffer losses. The locked hut can be opened by finding the key which is behind the next hut to the right.

SCENE THREE: BRIGHTLEAF

This elf scenario comprises a large transporter field and an underground section. You can escape from the transporter field by taking the spade and walking up to the tree on the small grassy knoll. The underground section is accessed by walking over the bridge and into the cave on the lefthand side. Once inside, pick up the small glowing stones as they can be used to remove stalactites.

SCENE FOUR: AXEHEAD HILL

There are two caves here and the one nearest the river conceals a special lever. This lever disables all the pit traps on this level, but requires you to perform a particular ritual to make it work.

First deal with the two orcs and walk right up to the lever and away again. The lever changes position. If you then enter the other cave, you can kill the orc in the corner and then follow the passage to the end, where it turns left. Here you find a room, after which the passage continues. Stay on the lefthand side as you pass through. Once you are through, keep going until you're out of the underground section, using the cave exit at the end.

You now find yourself on the other bank of the river. The cave nearest the river requires caution for you to enter safely. Once inside the cave, move left as far as possible and then go up. You find yourself in a cave full of spiders, but moving back down transports them all outside again.

THE KILLING CLOUD

**ImageWorks/Vector Grafix
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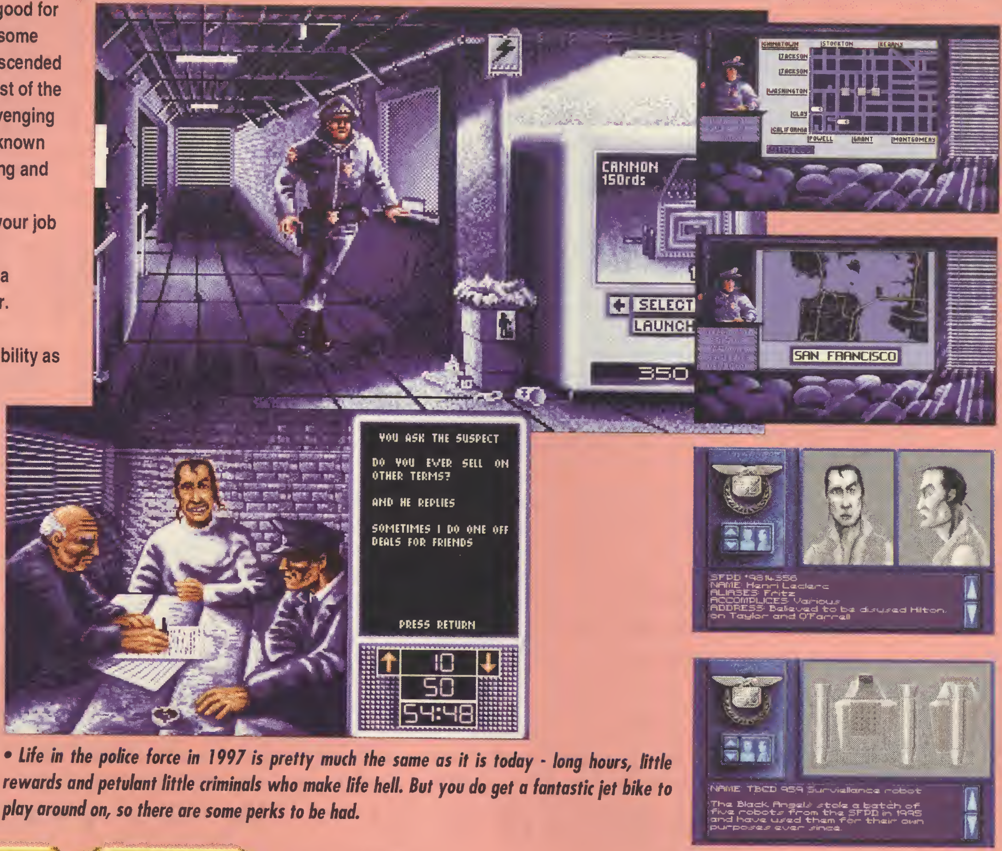
Life's a gas



YOU ASK THE SUSPECT

DO YOU EVER SELL ON OTHER TERMS?

AND HE REPLIES

SOMETIMES I DO ONE OFF DEALS FOR FRIENDS

PRESS RETURN

SFPD *9814356
NAME: Henri Leclerc
ALIASES: Fritz
ACCOMPLICES: Various
ADDRESS: Believed to be disused Hilton, on Taylor and O'Farrell

NAME: TBCD 959 Surviellance robot
The Black Angels stole a batch of five robots from the SFPD in 1995 and have used them for their own purposes ever since.

• Life in the police force in 1997 is pretty much the same as it is today - long hours, little rewards and petulant little criminals who make life hell. But you do get a fantastic jet bike to play around on, so there are some perks to be had.

San Francisco, 1997, and things are not looking good for you as a member of the 'Frisco Police force. For some strange reason, a huge cloud of toxic gas has descended on the city, plunging most of it into darkness. Most of the residents are dead or departed, and only the scavenging criminal element remain. The bads guys, a gang known as the Black Angels, are responsible for the looting and protection rackets that terrorise the remaining inhabitants. And (if you hadn't guessed by now) your job is to bust the Angels wide open.

The Killing Cloud is an awesome glimpse of a cyberpunk world brought to life on your computer. Although the game concept owes as much to the technical methods used to reduce long-range visibility as it does to gameplay, it is still, without doubt, compelling. Often scenarios which justify technical wizardry are just so much pap, but *The Killing Cloud* could make an exciting film. As a computer game, it's ideal.

Vektor Grafix has used its 3D filled-vector engine to the full, and the resulting arena is an incredible achievement. As you hover around above the cloud in your SFPD jetbike, you can see the tops of buildings – some of which are well-known landmarks – poking through, including a rather run-down Golden Gate Bridge. Passing over the various districts, your on-board computer/radar reveals the name of the locality: Chinatown, Russian Hill, North Beach and the Marina are all there, somewhere under the cloud.

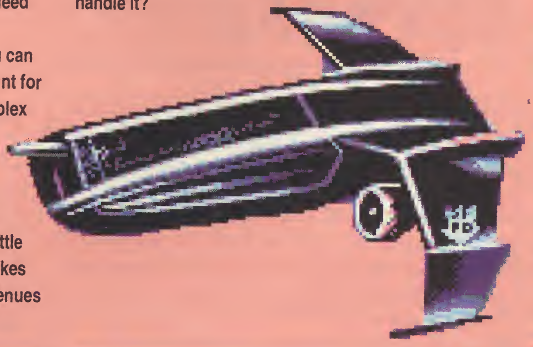
Ducking down into the murky depths of the gas, everything goes black. Except for your altimeter, which politely informs you that you are now flying below building level. And you still can't see a thing. Suddenly, the cloud breaks up, and an infra-red image of the world beneath the cloud appears through your cockpit window. Streets wind off in all directions, with buildings huge and small on all sides. Navigating by radar, you must find special net missiles which you have previously ordered to be deployed on the streets. Scooping them up, you find yourself armed and semi-dangerous, and begin the hunt for criminals, robots, and all other kinds of Black Angel nastiness, assuming that you don't instantly pile into the side of a skyscraper which loomed out of the fog without warning.

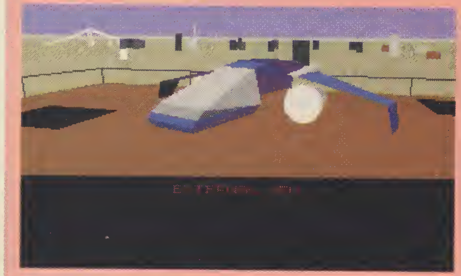
The dark world under the cloud is made worse by the presence of the Black Angels themselves, who take delight in engaging in air to air combat with you. Battling in semi-darkness at high speeds calls for nerves of steel and trousers of wipe-clean vinyl. Armed with a machine gun and a cannon, you're chances are good, but (as they say) not *that* good.

You have a specific target on most missions, but one that must be trapped, rather than killed and this can cause problems. Net missiles, used to ensnare the perps, are difficult to find and limited in number. Worse still, the remote-controlled PUP crafts which are used to retrieve trapped criminals must be placed nearby *before* you start each mission, and the Black Angels have a habit of finding them just when you need them most.

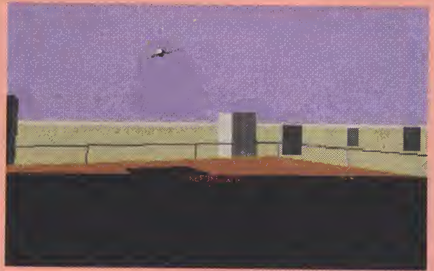
Once you're back at the nearest police HQ, you can begin searching for the answers you need in you hunt for the leaders of the Black Angels gang. This is a complex process, involving plea-bargaining. You offer your suspects years off their sentences in return for the information you need (the torture scenes which were planned for *The Killing Cloud* have been ditched in the interests of "good taste"). Though a little tedious, this section of the game is workable, and takes the form of a question-answer routine with many avenues to explore before the time runs out. A successful interrogation (whoops, sorry, chat) reveals new information which is followed up on your next mission.

The Killing Cloud is an admirable piece of software, and is genuinely scary at times. Occasionally things can chug a wee bit when there are large numbers of complex objects on screen, but this detracts very little from the game itself. The strong concept and dynamic action pull you through and you feel completely involved, which is an important (but often overlooked) requirement for a really entertaining game. This is the future, now. Can you handle it?

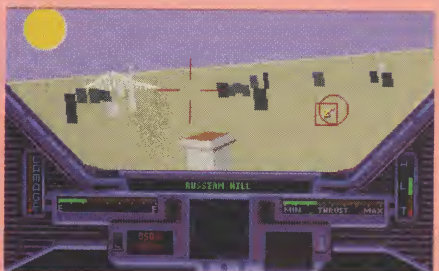




• On top of the police station, your jet-bike awaits...



• But there's no time to hang around - you're already under attack...



• So get out there and do it to them, before they do it you!

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BUDGET SCANNER

DTP for free? Almost. Keith Pomfret looks at a budget PC Scanner for £79.

Desk top publishing is becoming popular and availability of good sub-£100 DTP software has brought professional presentation of documents into the domain of most PC users. The only problem with DTP on a budget is image processing. There's a limit to how professional you can make a document using the bits of clip art that freely circulate, but reproduction and printing can cost an arm and a leg if you want to include photography. The alternative was scanning but a scanner, interface and software could cost at least as much as the PC it was being used on.

A scanner with an interface, software and manuals for under £80 came as a fiscal shock, but we were soon ready to put the budget scanner package to the test. The scanner is the Acer Scan 6671 Handy scanner. It comes with an 8-bit interface card, software on a 5.25-inch disk and manuals for both scanner and software. The software runs under Windows and although that may have been a disadvantage a year ago, Windows is popular enough now for it not to be a compatibility problem. The version we received was set up for Windows 2, but by adding /r in the start up sequence, we were able to load a compatible version of Windows 3.

Control of the scanner is by a brightness control, moding switch, resolution switch and start button. Like most hand scanners, it is held on the image to be grabbed, then gently dragged across the image. The scan head is 70mm wide which is wide enough to scan a column of text or a photo or illustration no more than three inches wide.

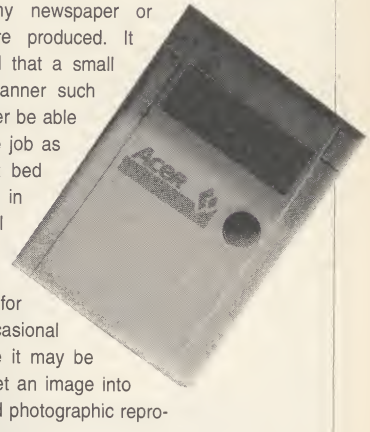
Images wider than this must be scanned in several passes, but it could prove difficult matching the images. The software provided is adequate for single pass scanning, but for accurate multi-panel matching (tiling), graphic manipulation software is a must.

The scanner operates in three resolutions. The resolution switch chooses between Low Medium and High which correspond to 200, 300, and 400 dots per inch. A mode switch offers pure Black/White and three halftone modes and a rotary brightness control helps to set the optimum image.

As the software and hardware are complement each other and come from the same company, there are none of the incompatibility problems normally associated with software/hardware interface.

System requirements to use the Acer Scanner are at least an XT with 640K of RAM, a hard disk with 2Mb free space, a printer that works with Windows (preferably a laser), at least EGA graphics and although a mouse isn't an absolute requirement, it certainly helps.

The results from scanning with the 6671 are acceptable and in halftone modes, results acceptable for a company newspaper or newsletter were produced. It has to be said that a small mono hand scanner such as this will never be able to do the same job as page sized flat bed scanners used in professional publishing, but the output is good enough for low volume occasional scanning where it may be necessary to get an image into a document and photographic reproduction isn't necessary.

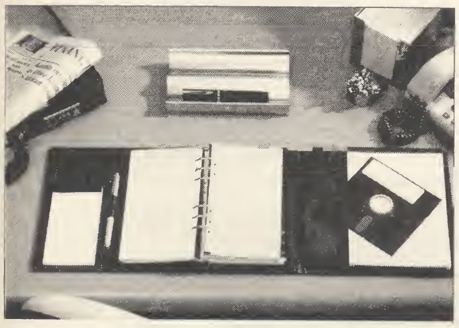


The files produced by Acer Scan Studio were tested by importing them into the two heavyweight DTP packages, *Pagemaker* and *Ventura*.

We had expected short cuts for the £79 price tag, but didn't find any. It is a well specified package that does a good basic scanning job and is immense value for money. At this price you are paying less for a piece of hardware than you could pay for software.

Acer Scan 6671 *is available from* UK Home Computers *on 0793 695034.* ■

ORGANISED PC



PC Collection is a suite of programs, an organiser and print routines. Keith Pomfret loaded it to see if he could increase his productivity.

The idea of a filofax style organiser and a computer program to keep things in check isn't new. There are several contenders for your cash ranging from a few pounds to a few hundred. The PC Collection is definitely first division in the price stakes, costing a fraction under two hundred pounds.

The idea of time optimisation or time management in an integrated package has been around for some 20 years. Like most things to do with organised efficiency, it saw its birth on the colonial side of the Atlantic and has grown to encompass the rest of the planet. From seminars and checklists it evolved into the Filofax and time manager. Although still a pen and paper system, these were evolving into structured time analysis modules that could eventually benefit from the use of a computer. This is where PC Collection comes in. It comes in a specially designed fold out organiser made from rich burgundy leather with a soft nylon cover to protect it. Built into the organiser is a notepad and a calculator and there are sections on the ring binder for time and schedule as well as data.

The PC end of things is looked after by a suite of programs supplied on 3.5-inch or 5.25-inch disks and an installation program sets it up in a directory on the hard disk. When testing the PC Collection, we found it was useful to fire up the software by adding a couple of lines to the Autoexec file. This way, the day/month/year schedule is looked at on morning start up. No organiser or resources manager plan can work without personal discipline and there is no point in having a suite of programs designed to optimise your performance if you only look at them occasionally.

Once the programs are loaded you have a choice of diary, address book, telephone directory, database, information pages and utilities which are then broken down into further sections. Included in the diary suite of programs are diaries, appointments lists, year planners, calendars, aniversaries and all the other building blocks that help construct day to day records.

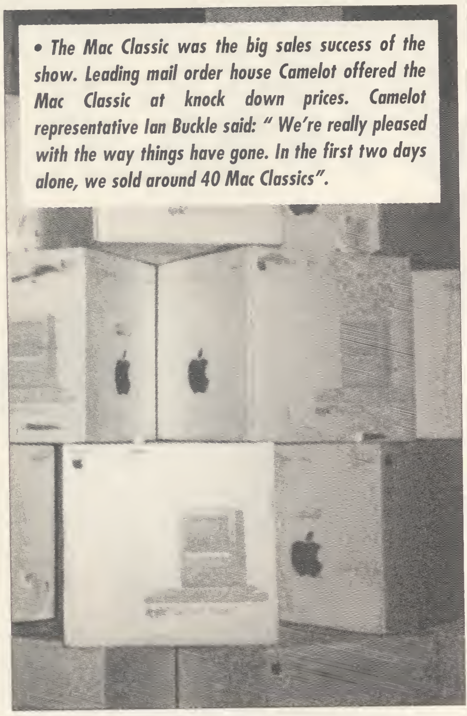
Having everything on the computer and not being able to transfer it without laborious copying is where many of the personal data systems fall down. Not so with the PC collection.

Included with the software are printer routines that allow you to print direct from the files to special Filofax style paper supplied with PC collection. This is quality paper that is the correct length and width for attachment to the organiser.

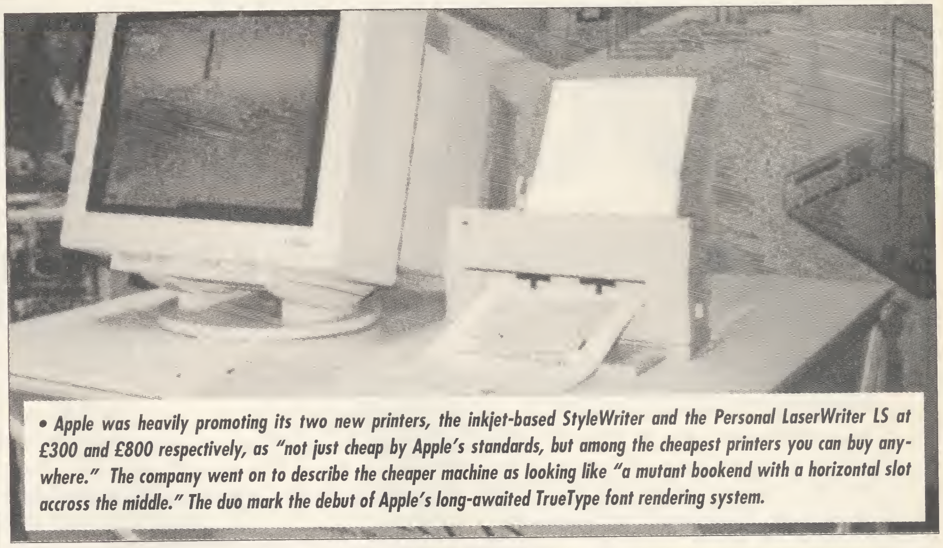
If you keep your schedules up-to-date on a daily basis, it is as simple as running the program and printing to update your mobile entries. The printed results looked fine via a good quality matrix printer, but the system excelled via an Epson Laser.

Careful planning and printing meant that the pages in the organiser had a professional printed feel to them, rather than the hastily scribbled notes that are usually found. My personal telephone directory took on the appearance of something that had been laboriously prepared by a printer rather than the half legible scribbles that normally get taken down on the phone.

The PC Collection *is available from* Milgate *on 0628 7894001 priced at £169.* ■



• The Mac Classic was the big sales success of the show. Leading mail order house Camelot offered the Mac Classic at knock down prices. Camelot representative Ian Buckle said: " We're really pleased with the way things have gone. In the first two days alone, we sold around 40 Mac Classics".



• Apple was heavily promoting its two new printers, the inkjet-based StyleWriter and the Personal LaserWriter LS at £300 and £800 respectively, as "not just cheap by Apple's standards, but among the cheapest printers you can buy anywhere." The company went on to describe the cheaper machine as looking like "a mutant bookend with a horizontal slot accross the middle." The duo mark the debut of Apple's long-awaited TrueType font rendering system.

A CLASSIC MAC EXPO

The organisers, exhibitors and, most importantly, the attendees at this year's MacWorld Expo unanimously agreed that the show was a huge success.

Held at the National Exhibition Centre in Birmingham, the show's second year attracted a larger than expected audience with more than 12,500 visitors attending over the three days from March 12 to 14.

On the show's second day, it was hot and sunny outside, but exhibitors managed to keep visitors in the exhibition hall and interest high.

Although a great deal of money was changing hands, this was not a show for box shifters. Visitors were there to get a first taste of the many sophisticated new launches exhibitors had to offer, and they were not disappointed.

Unsurprisingly, leaders in the Mac market, Apple, dominated the show with an impressive stand. The company had two new low cost printers to show off – the StyleWriter printer and the LaserWriter LS – and predictably also used the event as a major drive for its three new budget computers launched at the end of last year.

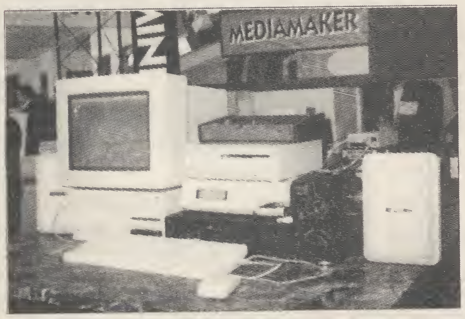
In fact, the undisputed star of the show was the Mac Classic, the computer which has bought the Mac range within reach of the individual, with many of the dealers reporting very impressive sales for Apple's affordable dynamo. Midland Macintosh dealer MBC, which was offering visitors the chance to win a Mac Classic, claimed that sales of the Classic were "better than ever expected."

Other companies, including Philips, used multimedia systems to attract attention. One of the most impressive of these was the Computers Unlimited stand which was showing off the company's latest Desktop Video Publishing (DVP) bundles. There was a Mac connected to a variety of communications hardware, videos, Compact Disc players, video cameras and video editing equipment, while on the monitor the video input was displayed in its own individual window.

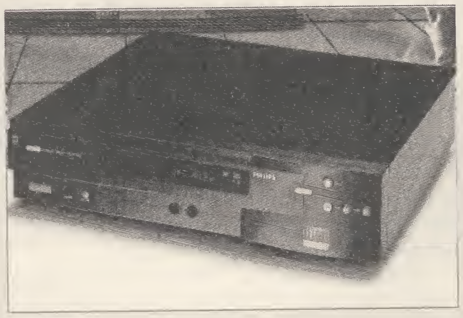
To prove that the Mac is about more than just publishing, a wide variety of games were also very much in evidence with Accolade especially taking the opportunity to promote its range of sophisticated sims and fantasy adventures, such as *Mean 18* and *Stratego*. Among the more off beat items at the show was a Mac embroidery system, the POEM 500 from Aisin Seiki. Now you can draw a design on your Mac's screen and the computerised stitcher will reproduce it on cloth using a specially made embroidery frame. Are there no limits to this computer's abilities?

Show organiser, Sally Preston, said: "One of the main advantages of moving the show from London to Birmingham has been the range of facilities through the NEC. The Expo has produced a very high quality and quantity of new leads and is set to be even bigger and better next year". ■

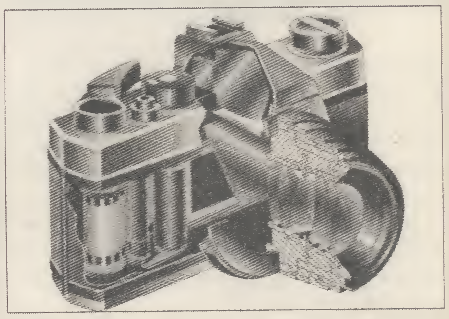
PICK OF THE PITCHERS



• Desktop Video Publishing from Computers Unlimited – impressive multimedia on show.



• Philips was emphasising the educational aspects of its interactive CD-I system at the show. The display program it was running at MacWorld was aimed at young children and featured the Sesame Street character Big Bird.



• Apple was not the only company with snazzy new colour printers to show off. The Phaser PX printer from Tektronix UK Ltd produces high quality graphics using thermal wax and inkjet technologies and has been redesigned to be quieter.

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FUTURE WORLDS IN CYBERSPACE

Why is the fifth largest PC software company in America interested in virtual reality? Rik Haynes jacks into Autodesk and discovers plans for a cyberspace playhouse...

Not many companies work on the frontiers of computer graphics. Autodesk does. And thrives on it. The world's leading developer of design and drafting software for desktop computers and workstations was founded back in 1982. Nine years later, Autodesk markets its products in 12 different languages and 70 countries around the world.

The first product from this successful Californian company was introduced at Comdex in November 1982 and started shipping a month later for CP/M Z80 computers. There are now more than 300,000 installed units of its AutoCAD design software around the world, with editions available in Japanese, Russian, Czech and Polish. Users range from Defence manufacturers to TV companies, uses from expansion plans for Orlando Airport to robotic hands at NASA (see box).

At Hughes Aircraft Company in El Segundo, AutoCAD forms part of the Integrated Manufacturing Process Information System (IMPIS). Encompassing 28 Sun workstations, IMPIS helps assembly planners in the Hughes Radar Systems Group create complex assembly instructions used to produce radar systems for F-14, F-15, F/A-18 and B-2 military aircraft.

SOFT CELL

Two years ago, Autodesk started developing a family of scientific software products. *Cellular Automata Lab*, the first product in this science series was released in 1989. Rudy Rucker, the designer of CA Lab, is a well-known writer of science-fiction and maths books. His cyberpunk sci-fi novel *Wetware* was awarded the Philip K Dick Prize for best paperback in 1988. With CA Lab, you can produce sensational animated computer graphics with ease, or simulate physical and biological phenomena.

Cellular Automata are programs that produce self-generating computer graphics. Your computer takes an initial pattern and then repeatedly updates it according to a rule. The ever-changing, unpredictable patterns that evolve are often remarkable and sublime. One of the first and most famous *Cellular Automata* was John Conway's *Game of Life*. Developed in the late 1960s, *Life* simulates the birth, growth and death of a population according to a set of genetic rules. A version of *Life* is available for nearly every computer format on the planet, from the Sinclair ZX81 to Cray mainframe.

CA Lab divides the computer screen into equal sized cells, which are coloured rectangles or dots. Each cell is repeatedly updated to a new colour according to a set of rules. The net effect of the individual updates is an ever-evolving sequence of screens so that what you choose or pre-program affects every cell on the screen all at once, time after time. The new colour of a cell is based solely on its previous colour and the previous colour of the adjacent cells. "The Autodesk CA Lab loses your creativity in a virtually infinite domain, where your discoveries may be not just interesting or rewarding, but may create a whole new world," says Autodesk founder John Walker.

The potential of *Cellular Automata* remains largely untapped. NASA computers in Maryland use *Cellular Automata* to process and enhance satellite photo data. Rudy Rucker reckons that *Cellular Automata* will eventually provide a central key to the development of artificial life.

James Gleick's best-selling book, *Chaos – Making a New Science*, was the inspiration for the second science product (see box). Autodesk plans to develop additional science products that will bring scientific applications once possible only on mainframes to the desktop computer. *Autodesk Animator*, an advanced multimedia software package for the PC, appeals to video professionals who want to create sophisticated animation and image creations. Fleet Street Productions from San Francisco uses *Autodesk Animator* to create video special effects in TV commercials for the likes of Taco Bell and Toyota. More multimedia products are due in the coming year.

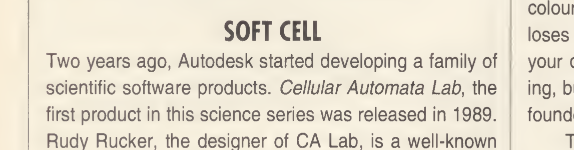
Autodesk is also continuing its pioneering efforts in the area of information processing tools. Its Xanadu subsidiary is developing a hypertext filing and retrieval system for text, images and other media that will greatly streamline the way information is processed.

IN THE LABS

Enthused by the far-sighted science fiction works of William Gibson, Autodesk is currently exploring the futuristic interface technology called cyberspace or virtual reality. For this purpose, the cunning company established the Autodesk Research Lab (ARL), a cosmopolitan environment for technology-tracking, experimentation, prototype development and testing.

"Cyberspace is a new medium that gives its patrons a strong sense they have been embodied in a virtual reality," says Randal Walser from the Cyberspace Project at ARL. "While cyberspace may be the most important new medium since television, there is nothing radically new in the technology that underlies it. In fact, the essential elements of cyberspace technology have been available since the 1960s.

"In William Gibson's stories, starting with *Neuromancer*, people use an instrument called a 'deck' to 'jack' into cyberspace. The instrument that Gibson



GIVING A HAND AT NASA

Engineers at the Electromechanical Branch at NASA's Goddard Space Flight Centre in America are using AutoCAD to develop a completely new type of robot hand. Unlike previous robot hands, the five-finger anthrobot (anthropomorphic robot) hand resembles the basic skeletal structure of the human hand and incorporates its dexterity. Instead of relying on elaborate computer architecture for this dexterity, the anthrobot hand mirrors the natural, intuitive hand movements of a human operator. The operator wears a special glove that records and transmits hand movements to the anthrobot hand, which then repeats each movement.

Eventually, the anthrobot hand may be used in space by NASA specialists to work remotely on projects requiring human dexterity. Before prototypes can be built, designs must be created to extremely high standards. "What's nice about using AutoCAD," confides NASA's Chuck Engler at the Goddard Space Centre, "is that I don't have to start over from scratch every time I make a design change."

• *Anyone for virtual racquetball? Autodesk researchers are exploring the next generation of computer-human interfaces.*

• *Anything is possible in cyberspace or virtual reality, even bicycles can skim over the water or fly, like in the movie ET.*

• *Interactivity in cyberspace includes such actions as grasping, moving, releasing, throwing, etc..*

describes is small enough to fit in a drawer and directly stimulates the human nervous system. While Gibson's vision is beyond the reach of today's technology, it is nonetheless possible, today, to achieve many of the effects to which Gibson alludes. A number of companies and organisations are actively developing the essential elements of a cyberspace deck. These groups include NASA, VPL Research and Autodesk."

Autodesk's prototype cyberspace software allows a CAD operator wearing a special glove and goggles to interact with 3D computer-generated graphics as if they were real. Cyberspace holds tremendous promise as a user interface for designers or platform for a new breed of realistic video games. One of the more bizarre concepts circulating through ARL is the cyberspace playhouse.

"Building on a conception of cyberspace as a form of theatre", Randal Walser envisions, "a new kind of social gathering place where people go to participate in three dimensional simulations.

FUN FACTORIES AND BEYOND

Whereas film is used to show a reality to an audience, cyberspace is used to give a virtual body, and a role, to everyone in the audience. Print and radio tell; stage and film show; cyberspace embodies."

"I expect that playhouses will be used for many purposes, including drama, design, education, business, fitness and fun. The sole purpose of cyberspace technology is to trick the human senses and sensibilities, to help people buy into and sustain an illusion.

Head-mounted displays are important because they flood the human sense of sight with illusory images, making it much easier for people to suspend their disbelief. Nonetheless, head-mounted displays are merely one means among many, including out-the-window visual displays, three dimensional audio displays, motion platforms, force-feedback devices, credible simulation worlds, dramatic tension, high stakes, engaging stories and social reinforcement.

The upshot is that there is no sure-fire way to put people into cyberspace: ultimately the job is an artistic one."

"The critical thing to realise about the design of cyberspaces, for sports, is that sporting decks will generally have sophisticated props, like recumbent bicycles and inclined treadmills, and that sporting houses will make money by renting time on those decks.

A sporting house could be used for many purposes, including physical training, survival games, races, tours, rallies, various forms of dance, tournaments, adventure games, orienteering and variations on traditional sports like baseball and racquetball. I use the term 'dance' in a very general sense to refer to any kind of whole body movement or routine that does not depend on a stationary prop. Except for computer and electronic apparatus, a dance stage is simply a carpeted room that is big enough to allow a player to take three or four steps.

Thus, a dance stage can be used for a wide range of purposes, including stretching, aerobic dancing, martial arts, racquet sports, batting sports, callisthenics and 'body music' – a new form of musical expression, made possible by cyberspace, in which a dancer maintains the quality of a musical jam session by performing certain dance routines and exercises."

"Today, a cyberspace playhouse is only a thought experiment, but it could soon be the infrastructure that makes us whole again, by bringing us back to our bodies. It is hard to imagine that any enterprise, or any medium, could have a more profound effect on human affairs."

Who knows where these visionaries will lead us? According to Autodesk, with cyberspace, 'reality just isn't enough any more'. ■

Readers interested in further information on virtual technologies and developments should check out CYBER, *a 60 page bi-monthly update available from 90A Devonshire Rd, London SE23 3SX for £20 per annum.*

CHAOS FOR THE CONSUMER

Autodesk's Chaos was produced in collaboration with author James Gleick.The Software is an interactive graphics product with six different programs that graphically present, in high-resolution colour and sound, many of the chaotic systems discussed in Gleick's best-selling book, *Chaos –Making a New Science.* Chaos is a buzzword among the science boffins, who like to explain the mysterious in terms of cold hard maths. Users can customise each Autodesk program, tweaking and fine-tuning constantly changing graphical patterns.

James Gleick, "This program will let people explore chaos for themselves in an interactive hands-on way." With this software, you can play with the chaotic dance of magnets attracting and repelling a pendulum, create fractal images of mountains, clouds and planets. Chaos images can also be used as graphics in multimedia presentations with any programs that support the GIF file format. Priced at $59.95 for PC in the US. Contact Autodesk on 0101 415 3310356 or GO ADESK on Compuserve.

IT'S SO VIRTUAL, MAN

Virtual visionaries have discussed and promoted the essential aspects of cyberspace under various names since the 1960s. The roots of the field are generally traced back to Professor Ivan Sutherland and his seminal work on Sketchpad, the first widely-known interactive computer graphics system, at the Massachusetts Institute of Technology. Much later, Papert spoke of 'Microworlds', Krueger of 'Artificial Reality' and Brooks of 'Virtual Worlds'. The term 'cyberspace' was first used by William Gibson in Neuromancer, to denote a global computer communications network supporting 'consensual hallucinations' involving billions of people on a daily basis. 'Virtual Reality' is the term favoured by Jaron Lanier, the eccentric rasta-haired boss of VPL Research, another Californian company living on the edge. While Autodesk dreams of the cyberspace playhouse and VPL Research works on 'Reality Built For Two', Angel Studios is developing Virtual Sex...

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I know Saddam Hussein has read 1984 because ....

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Both machines have tear off and paper park functions and resident fonts. The 1309 has four resident fonts on board and costs £239, and the 1324 has seven fonts and cost £319.

Now all you have to do is answer the following six questions and the first two correct entries to be drawn will take home a printer each.

1) 'He aint heavy, he's my brother' was sung by:
a) The Hollies
b) The Ivy League
c) The Brothers
d) Lena Zavaroni

2) DMP stands for:
a) Developed motive priority
b) Dartford and Manchester Produce PLC
c) Dot matrix printer
d) Diaphanous moving printhead

3) Which of the following would you not need to install a printer?
a) A cable
b) A printer driver
c) A printer
d) A dual beam 20MHz oscilloscope.

4) What couldn't you use a dot matrix printer for?
a) Word processing
b) Spreadsheets
c) DTP
d) Towing a 38 tonne lorry

5) What is the speed in CPS of the 1309 and 1324 in draft mode?
a) 2367
b) 216
c) 21.6
d) 148kph

Paste the coupon on to the back of an envelope or postcard and send to: The Express "He aint heavy" competition, 29 Monmouth Street, Bath BA1 2BW. ■

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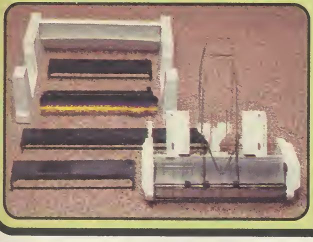

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